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SESSIONAL PAPERS

VOLUME 8

THIRD SESSION OF THE TENTH PARLIAMENT

OF THE

DOMINION OF CANADA

SESSION 1906-7

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VOLUME XLI

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1. Report of the Auditor General, for the fiscal year ended 30th June, 1906. Partial report presented 9th January, 1907, by Hon. W. S. Fielding; also 4th February; 7th February; 21st February; 22nd February, 1st March..... *Printed for both distribution and sessional papers.*

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2. Public Accounts of Canada, for the fiscal year ended 30th June, 1906. Presented 27th November, 1906, by Sir Wilfrid Laurier .... *Printed for both distribution and sessional papers.*

3. Estimates of the sums required for the services of Canada for the year ending 31st March, 1908. Presented 29th November, 1906, by Hon. W. S. Fielding.
Printed for both distribution and sessional papers.

3*a*. Supplementary Estimates for the fiscal period of nine months ending 31st March, 1907. Presented 22nd January, 1907, by Hon. W. S. Fielding..... *Printed for both distribution and sessional papers.*

4. Further Supplementary Estimates for the period of nine months ending on the 31st March, 1907. Presented 2nd April, 1907, by Hon. W. S. Fielding.... *Printed for both distribution and sessional papers.*

5. Supplementary Estimates for the year ending 31st March, 1908. Presented 19th April, 1907, by Hon. W. S. Fielding..... *Printed for both distribution and sessional papers.*

5*a*. Further Supplementary Estimates for the year ending 31st March, 1908. Presented 25th April, 1907, by Hon. W. S. Fielding... .. .. *Printed by both distribution and sessional papers.*

6. List of Shareholders in the Chartered Banks of Canada, as on the 31st December, 1906. Presented 25th April, 1907, by Hon. W. S. Fielding..... ... . . *Printed for both distribution and sessional papers.*

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7. Report of dividends remaining unpaid, unclaimed balances and unpaid drafts and bills of exchange in Chartered Banks of Canada, for five years and upwards, prior to December 31, 1906.
Printed for both distribution and sessional papers.

8. Report of the Superintendent of Insurance for the year ended 31st December, 1906.
Printed for both distribution and sessional papers.

9. Abstract of Statements of Insurance Companies in Canada, for the year ended 31st December, 1906.
Printed for both distribution and sessional papers.

CONTENTS OF VOLUME 4.

10. Report of the Department of Trade and Commerce, for the fiscal year ended 30th June, 1906. Part I.—Canadian Trade. Presented 11th February, 1907, by Hon. W. Paterson.
Printed for both distribution and sessional papers.

10*a*. Report of the Department of Trade and Commerce, for the year ended 30th June, 1906. Part II.—Trade of Foreign Countries and Treaties and Conventions.
Printed for both distribution and sessional papers.

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11. Tables of the Trade and Navigation of Canada, for the fiscal year ended 30th June, 1906. Presented 27th November, 1906, by Sir Wilfrid Laurier.....*Printed for both distribution and sessional papers.*

12. Inland Revenues of Canada. Excise, &c., for the fiscal year ended 30th June, 1906. Presented 18th December, 1906, by Hon. W. Templeman.....*Printed for both distribution and sessional papers.*

13. Inspection of Weights, Measures Gas and Electric Light, for the fiscal year ended 30th June, 1906. Presented 27th November, 1906, by Hon. W. Templeman.

Printed for both distribution and sessional papers.

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14. Report on Adulteration of Food, for the fiscal year ended 30th June, 1906. Presented 3rd April, 1907, by Hon. W. Templeman.....*Printed for both distribution and sessional papers.*

15. Report of the Minister of Agriculture, for five months ended 31st March, 1906. Presented 27th November, 1907, by Hon. S. A. Fisher.....*Printed for both distribution and sessional papers.*

16. Report of the Directors and Officers of the Experimental Farms, from 1st December, 1905, to 31st March, 1906. Presented 27th November, 1906, by Hon. S A. Fisher.

Printed for both distribution and sessional papers.

17. Criminal Statistics for the year ended 30th September, 1906.

Printed for both distribution and sessional papers.

17*a*. Census of the Northwest Provinces, Manitoba, Saskatchewan and Alberta, 1906. Presented 7th February, 1907, by Hon. S. A. Fisher..... *Printed for both distribution and sessional papers.*

17*b*. Return of By-elections for the House of Commons of Canada, held during the year 1906. Presented 15th April, 1907, by Hon. W. S. Fielding.....*Printed for both distribution and sessional papers.*

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18. Report on Canadian Archives, 1906.....*Printed for both distribution and sessional papers.*

19. Report of the Minister of Public Works, for the fiscal year ended 30th June, 1906. Presented 21st January, 1907, by Hon. S. A. Fisher.....*Printed for both distribution and sessional papers.*

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19*a*. Reports of the International Waterways Commission, 1906.

Printed for both distribution and sessional papers.

20. Annual Report of the Department of Railways and Canals, for the fiscal year ended 30th June, 1906. Presented 9th January, 1907, by Hon. H. R. Emmerson.

Printed for both distribution and sessional papers.

20*a*. Canal Statistics for the season of navigation, 1905..*Printed for both distribution and sessional papers.*

20*b*. Railway Statistics of Canada for the year ended 30th June, 1906. Presented 21st February, 1907, by Sir Wilfrid Laurier.....*Printed for both distribution and sessional papers.*

20*c*. First Report of the Board of Railway Commissioners for Canada. February 1st, 1904, to March 31st, 1906. Presented 14th March, 1907, by Hon. H. R. Emmerson.

Printed for both distribution and sessional papers.

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21. Report of the Department of Marine and Fisheries (Marine), for the year ended 30th June, 190 Presented 11th March, 1907, by Hon. W. S. Fielding.

Printed for both distribution and sessional papers.

21*a*. (No issue for 1906).

21*b*. List of Shipping issued by the Department of Marine and Fisheries, being a list of vessels on the registry books of Canada on the 31st December, 1906.

Printed for both distribution and sessional papers.

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22. Report of the Department of Marine and Fisheries (Fisheries), for the fiscal year ended 30th June, 1906. Presented 27th November, 1906, by Sir Wilfrid Laurier.
Printed for both distribution and sessional papers.

22*a*. Further contributions to Canadian Biology, being studies from the Marine Biological Station of Canada, 1902-1906. ..... *Printed for both distribution and sessional papers.*

23. Report of the Harbour Commissioners, &c., 1906... *Printed for both distribution and sessional papers.*

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24. Report of the Postmaster General, for the year ended 30th June, 1906. Presented 27th November, 1906, by Sir Wilfrid Laurier..... *Printed for both distribution and sessional papers.*

25. Annual Report of the Department of the Interior, for the fiscal year ended 30th June, 1906. Presented 9th January, 1907, by Hon. F. Oliver.. *Printed for both distribution and sessional papers.*

25*a*. Interim Report of the Commissioner of the Yukon Territory, December, 1906.
Printed for both distribution and sessional papers.

25*b*. Report of the Surveyor General of Dominion Lands, for the year ended 30th June, 1906.
Printed for both distribution and sessional papers.

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26. Summary Report of the Geological Survey Department, for the calendar year 1906. Presented 16th January, 1907, by Hon. S. A. Fisher. ..... *Printed for both distribution and sessional papers.*

26*a*. Annual Report of the Mineral Industries of Canada, 1905. Section of Mines.
Printed for both distribution and sessional papers.

26*b*. Report on the Cascade Coal Basin, Alberta..... *Printed for both distribution and sessional papers.*

27. Annual Report of the Department of Indian Affairs, for the fiscal year ended 30th June, 1906. Presented 9th January, 1907, by Hon. F. Oliver..... *Printed for both distribution and sessional papers.*

28. Report of the the Royal Northwest Mounted Police, 1906. Presented 22nd February, 1907, by Sir Wilfrid Laurier..... *Printed for both distribution and s ssional papers.*

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29. Report of the Secretary of State of Canada, for the year ended 31st December, 1906. Presented 25th April, 1907, by Hon. W. S. Fielding..... *Printed for both distribution and sessional papers.*

29*a*. Minutes of the proceedings in Conference between Members of the Government and of the various Provincial Governments, assembled at Ottawa, October, 1906. Presented 9th January, 1907, by Sir Wilfrid Laurier..... *Printed for both distribution and sessional papers.*

30. Civil Service List of Canada, 1906. Presented 14th January, 1907, by Sir Wilfrid Laurier.
Printed for both distribution and sessional papers,

31. Report of the Board of Civil Service Examiners, for the year ended 31st December, 1906. Presented 24th April, 1907, by Hon. W. S. Fielding..... *Printed for both distribution and sessional papers.*

32. Annual Report of the Department of Public Printing and Stationery, for the year ended 30th June, 1906. Presented 15th April, 1907, by Hon. W. S. Fielding.
Printed for both distribution and sessional papers.

33. Report of the Joint Librarians of Parliament. Session of 1906-7. Presented 22nd November, 1906, by the Hon. The Speaker. ..... *Printed for sessional papers.*

34. Report of the Minister of Justice as to Penitentiaries of Canada, for the year ended 30th June, 1906. Presented 11th January, 1907, by Hon. A. B. Aylesworth.
Printed for both distribution and sessional papers.

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35. Annual Report of the Militia Council of Canada, for the year ended 31st December, 1906. Presented 21st March, 1907, by Sir Frederick Borden..... *Printed for both distribution and sessional papers.*

36. Report of the Department of Labour, for the year ended 30th June, 1906. Presented 27th November, 1906, by Sir Wilfrid Laurier..... *Printed for both distribution and sessional papers*

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37. Return to an order of the House of Commons, dated 21st March, 1906, showing: How many horses were tested for glanders with malein in the provinces of Manitoba, Saskatchewan and Alberta, respectively, by officials of this government; names of owners of horses; name of official, and date of application in each case; date when the horses were destroyed, in each case; date the owners received compensation in each case; amount received by the respective owners, and the valuation in each case; the variations of temperature in each case, with the highest and lowest readings; number of cases quarantined, names of owners, and period of quarantine; number of cases where retested, and the result; number of cases slaughtered after being retested; compensation paid, names of the owners, and the amount paid to each; cases where horses were slaughtered after being tested, and the number of post-mortem investigations held, with the result in each case and the names of owners. Presented 27th November, 1907.—*Mr. Staples*..... .....*Not Printed.*

38. The Canada Year Book, 1905. Presented 27th November, 1906, by Hon. S. A. Fisher.
Printed separately.

39. Exchequer Court Rules (amended), General Order of 8th October, 1903. Presented 27th November, 1906, by Sir Wilfrid Laurier ....*Not printed.*

40. Statement showing the expenditure on account of Unforeseen Expenses from the 1st July, 1906, to the 22nd November, 1906, in accordance with the Appropriation Act of 1906. Presented 28th November, 1906, by Hon. W. S. Fielding..... .....*Not printed.*

41. Statement of Superannuations and Retiring Allowances in the Civil Service during the year ended 31st December, 1906, showing name, rank, salary, service, allowance and cause of retirement of each person superannuated or retired, and also whether vacancy filled by promotion or by new appointment, and salary of any new appointee. Presented 28th November, 1906, by Hon. W. S. Fielding..... .....*Not printed.*

42. Statement in pursuance of section 17 of the Civil Service Insurance Act, for the year ending 30th June, 1906. Presented 28th November, 1906, by Hon. W. S. Fielding..... .... *Not printed.*

42*a*. Return to an address of the Senate, dated 14th March, 1907, for: 1. Copies of all regulations made by the Governor in Council under section 14, chapter 13, of the Act intituled: "The Civil Service Insurance Act." 2. The number of policies issued under the said Act, giving the dates of issue. 3. The names of the policy-holders. 4. The premiums paid annually or otherwise on each policy. 5. The total amount of the excess of the deduction from the salaries of said policy-holders on account of superannuation, and the deduction which would have been made had they not effected insurance under the said Act. 6. The total amount paid as death claims and the date of each payment. 7. The difference between the premiums paid, with the deduction made in excess, as stated in paragraph 5, as compared with losses through death claims with interest added at the rate of 3 per cent on the amount lost by the government under the operations of this Act up to the 1st of March instant. Presented 8th April, 1907.—*Hon. Mr. Ferguson*..... ....*Not printed.*

43. Statement of Governor General's Warrants issued since the last session of parliament, on account of the fiscal year 1906-7. Presented 28th November, 1907, by Hon. W. S. Fielding.....*Not printed.*

44. Report of the Dominion Government Expedition to Hudson Bay and the Arctic Islands on board the D. G. steamer *Neptune*, 1903-1904. Presented 28th November, 1906, by Hon. L. P. Brodeur.
Printed separately.

45. Ordinances of the Yukon Territory, passed by the Yukon Council in the year 1906. Presented 28th November, 1906, by Sir Wilfrid Laurier.. ....*Not printed*

46. Report of the Commissioners of Internal Economy of the House of Commons, from 21st July, 1905, to 11th July, 1906, pursuant to No. 9, Rules of the House. Presented 30th November, 1906, by the Hon. The Speaker..... .....*Not printed.*

47. The King's regulations and orders for the militia of Canada, 1906. Presented 3rd December, 1906, by Sir Frederick Borden ....*Not printed.*

48. Regulations for Ordnance Stores Services, 1905. Presented 3rd December, 1906, by Sir Frederick Borden. ....*Not printed.*

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49. Report of the International Waterways Commission upon the application of the Minnesota Canal and Power Company of Duluth, Minnesota, for permission to divert certain waters in the state of Minnesota from the boundary waters between the United States and Canada. Presented 3rd December, 1906, by Hon. S. A. Fisher... ..... *Not printed.*

49*a*. Joint Report of the International Waterways Commission, November 15th, 1906. Presented 3rd December, 1906, by Hon. S. A. Fisher..... ..... *Not printed.*

49*b*. Report of the Canadian Section of the International Waterways Commission for the year 1906. Presented 23rd January, 1907, by Hon. S. A. Fisher.... ..... *Not printed.*

50. Tables of the population of the Northwest Provinces in 1901 and 1906. Presented 3rd December, 1906, by Hon. S. A. Fisher.. ..... *Not printed.*

51. A detailed statement of all bonds and securities registered in the Department of the Secretary of State of Canada, since last return, 20th March, 1906, submitted to the parliament of Canada under section 23, chapter 19, of the Revised Statutes of Canada. Presented 5th December, 1906, by Sir Wilfrid Laurier..... *Not printed.*

52. Return under chapter 131 (R.S.C.), intituled: "An Act respecting Trade Unions," and submitted to parliament in accordance with section 23 of the said Act. Presented 5th December, 1906, by Sir Wilfrid Laurier ..... *Not printed.*

53. Return to an address of the House of Commons, dated 19th March, 1906, for copies of all orders in council and documents, between the first day of July, 1896, and the present time, relating to swamp lands; and of all letters, telegrams and other documents and correspondence between the government of Canada and the government of Manitoba, during the same period, relating to such lands. Presented 5th December, 1906.—*Mr. Staples*..... *Not printed.*

53*a*. Supplementary return to No. 53. Presented 11th December, 1906..... *Not printed.*

54. Return (in so far as the Department of the Interior is concerned) of copies of all orders in council, plans, papers, and correspondence which are required to be presented to the House of Commons, under a resolution passed on 20th February, 1882, since the date of the last return, under such resolution. Presented 5th December, 1906, by Hon. F. Oliver..... *Not printed.*

55. Return to an order of the House of Commons, dated 28th November, 1906, showing the number of commercial agencies for the Dominion in operation during the fiscal years 1905 and 1906, the names of the several agents, where located, their salaries, contingent expenses, the total cost of each agency, and the aggregate cost of all the agencies combined. Presented 6th December, 1906.—*Mr. Wilson* (*Lennox and Addington*)..... *Not printed.*

56. Return of orders in council passed under provisions of the Dominion Lands Act, affecting lands in the Yukon Territory; and of orders or ordinances passed under the provisions of section 8 of the Yukon Territory Act, as that section was enacted by section 3 of chapter 34, 2 Edward VII. Presented 6th December, 1906, by Hon. F. Oliver..... *Not printed.*

57. Return of orders in council, under the provisions of section 52 of the Northwest Irrigation Act. Presented 6th December, 1906, by Hon. F. Oliver..... *Not printed.*

58. Return of orders in council which have been published in the *Canada Gazette* and in the *British Columbia Gazette*, between 20th January and 1st December, 1906, in accordance with provisions of subsection (*d*) of section 38 of the regulations for the survey, administration, disposal and management of Dominion lands within the 40-mile railway belt in the province of British Columbia. Presented 6th December, 1906, by Hon. F. Oliver ..... *Not printed.*

59. Return of orders in council which have been published in the *Canada Gazette* between 20th January and 1st December, 1906, in accordance with the provisions of clause 91 of the Dominion Lands Act, chapter 54, of the Revised Statutes of Canada, and its amendments. Presented 6th December, 1906, by Hon. F. Oliver..... *Not printed.*

60. Return to an order of the House of Commons, dated 29th November, 1906, for a copy of the proclamations used in the elections of 1904, in the constituencies of Selkirk, Provencher, Macdonald, Lisgar, Marquette, Souris, Brandon and Portage la Prairie. Presented 10th December, 1906.—*Mr. Roche (Marquette)*..... *Not printed.*

61. Report of the Ottawa Improvement Commission for the fiscal year ended 30th June, 1906. Presented 10th December, 1906, by Hon. W. S. Fielding..... *Not printed.*

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61*a*. Orders in Council relative to the appointment of Commissioners under the provisions of chapter 10 of the Acts of 1899, intituled : "An Act respecting the city of Ottawa." Presented 28th January, 1907, by Sir Wilfrid Laurier..... *Not printed.*

62. Report of the Commissioners of the National Transcontinental Railway, under date of 9th October, 1906, on the surveys and other works under their charge for the year ended 30th June, 1906, in pursuance of subsection 2 of section 30, chapter 71, of 1903. Presented 10th December, 1906, by Hon. H. R. Emmerson..... *Printed for both distribution and sessional papers.*

62*a*. Return to an order of the House of Commons, dated 28th November, 1906, for a copy of all reports and plans of engineers regarding the line and location of the Grand Trunk Pacific Railway between the city of Quebec and Edmundston, New Brunswick, and more particularly the city of Quebec, and Lake Pheoneganook, in the county of Kamouraska. Presented 9th January, 1907.—*Mr. Monk.* *Not printed.*

62*b*. Return to an address of the House of Commons, dated 28th November, 1906, for a copy of all orders in council, surveys, reports, documents, and papers of every kind not already brought down, touching, showing or relating to the route of the National Transcontinental Railway between the city of Quebec and the city of Moncton. Presented 9th January, 1907.—*Mr. Crocket* ..... *Not printed.*

62*c*. Return to an address of the House of Commons, dated 18th December, 1906, for a copy of all orders in council, advertisements for tenders, tenders, specifications of every kind, plans, drawings, reports, letters, telegrams, correspondence, contracts, agreements and other documents and papers of every kind, touching or relating to the construction of a section of the Transcontinental Railway designated as "District F," from a point at or near the city of Winnipeg, to a point known as Peninsular Crossing, near the junction point of the Fort William branch of the Grand Trunk Pacific Railway, a distance of about 245 miles. Presented 29th January, 1907.—*Mr. Borden (Carleton). Not printed.*

62*d*. Return to an address of the House of Commons, dated 17th December, 1906, for a copy of all orders in council, advertisements for tenders, tenders, specifications of every kind, plans, drawings, reports, letters, telegrams, correspondence, contracts, agreements and other documents and papers of every kind, touching or relating to the construction of a section of the Transcontinental Railway, designated as "District B," beginning at the north end of the Quebec Bridge and Railway Company's bridge, in the vicinity of the city of Quebec, to a point near La Tuque, a distance of about 150 miles. Presented 29th January, 1907.—*Mr. Borden (Carleton)*..... *Not printed.*

62*e*. Return to an order of the House of Commons, dated 6th February, 1907, for a copy of plans, documents, &c., now under consideration by the Transcontinental Commission and Railway Commission pertaining to the development and improvement of Quebec Harbour as a maritime port and railway terminus. Presented 25th February, 1907.—*Mr. Robitaille*..... *Not printed.*

62*f*. Return to an address of the House of Commons, dated 23rd January, 1907, for a copy of all papers, correspondence, reports, plans and profiles, and estimates of costs at any time received by or filed with the Commissioners of the National Transcontinental Railway, or with the Department of Railways, respecting : (*a*) That portion of the route of the said railway between the Quebec bridge and the vicinity of the Maine boundary line, as the route for such portion has been approved or adopted, or respecting any suggested variations of the location of such portion of the railway ; (*b*) respecting another suggested route for the said portion of the said railway between the points aforesaid, not passing by way of Lake Etchemin, and sometimes known as the Morin route. 2. For a copy of all orders in council approving, adopting, or respecting any such routes between the points aforesaid. Presented 26th February, 1907.—*Mr. Morin*..... *Not printed.*

62*g*. Return to an order of the House of Commons, dated 4th March, 1907, for a copy of all memoranda in the possession of the government, showing the amounts from month to month reported by the company and verified by the officers of the government, as having been duly expended in connection with the construction of the western division of the National Transcontinental Railway, whereon the government of Canada guarantees the bonds to the extent of 75 per cent of the cost. Presented 14th March, 1907.—*Mr. Ames*..... *Not printed.*

62*h*. Return to an order of the House of Commons, dated 24th April, 1907, for copies of papers in relation to the Transcontinental Railway route through New Brunswick. Presented 24th April, 1907.—*Hon. W. S. Fielding*..... *Not printed.*

CONTENTS OF VOLUME 13—*Continued.*

63. Return to an order of the House of Commons, dated 3rd December, 1906, showing what properties, if any, have been purchased by the government during the past two years, in the city of Ottawa, between Sussex Street and Mackenzie Avenue; the properties acquired by the government in that locality; the names of the vendors; the dates of the purchases, the price agreed upon in each case; the superficies of the property acquired; the date on which the government took possession in each case. Presented 11th December, 1906.—*Mr. Morin* .. .. *Not printed.*

64. Return to an address of the House of Commons, dated 28th November, 1906, for a copy of all orders in council passed during the last three years, relating to the formation of any new territory or district, or the alteration of the boundaries of any territory or distriet in Canada. Presented 11th December, 1906.—*Mr. Sifton*..... .... *Not printed.*

64*a*. Return to an address of the House of Commons, dated 28th November, 1906, for a copy of all letters, communications, memorials, petitions, or documents, received during the past three years from the government of any province in the Dominion, or any member thereof, by the government of Canada, or any member thereof, relating to the extension or alteration of the boundaries of any province of Canada. Presented 17th December, 1906.—*Mr. Sifton.*

Printed for both distribution and sessional papers.

65. Return to an order of the House of Commons, dated 3rd December, 1906, for a copy of contracts with transatlantic steamship lines, in force during the season of 1906, that were entitled by such contract to receive bonuses or subventions from the government. Presented 11th December, 1906.—*Mr. Smith (Wentworth)*..... ..... *Not printed.*

66. Return to an order of the House of Commons, dated 28th November, 1906, for a copy of all letters, telegrams, correspondence, reports, documents and papers, with respect to filling the vacancy on the bench of the Supreme Court of Nova Scotia, occasioned by the appointment of Honourable D. C. Fraser to the office of Lieutenant Governor. Presented 14th December, 1906.—*Mr. Borden (Carleton)*..... .... *Not printed.*

(**66.** Sessional Papers of 1906). Evidence taken before the Royal Commission on Life Insurance. Presented 26th February, 1907, by Hon. W. S. Fielding..... ...*Printed for distribution.*

67. Report of the Deputy Minister of Labour on negotiations conducted by him under Conciliation Act, 1903, in connection with the strike of coal miners in the employ of the Alberta Railway and Irrigation Company, which commenced on 9th March, 1906. Presented 14th December, 1906, by Hon. R. Lemieux..... ..... *Not printed.*

68. Return to an order of the House of Commons, dated 28th November, 1906, for a copy of all papers and correspondence in connection with the Buckingham strike and riots. Presented 14th December, 1906, by Hon. R. Lemieux..... *Not printed.*

68*a*. Supplementary return to No. 68. Presented 9th January, 1907.—*Mr. Bourassa*.....*Not printed.*

68*b*. Return to an address of the Senate, dated 23rd of January, 1907, for a copy of all papers and correspondence having reference to the calling out of militia and to the intervention of the government in the late strikes and riots in Hamilton and Buckingham; also giving a statement showing the amounts paid by the government and municipalities in each case, for the services of the militia in connection with strikes; together with a statement showing in which cases, if any, the government was recouped by the municipalities, the amount paid the militia, and the amounts. Presented 19th February, 1907.—*Hon. Mr. David*... ..... *Not printed.*

69. Return to an order of the House of Commons, dated 3rd December, 1906, showing all, if any, islands or portions of islands sold since the first day of July, 1896, adjoining the townships of Baxter and Gibson, in the district of Muskoka, on the Georgian Bay, and the prices received therefor, respectively. Presented 17th December, 1906.—*Mr. Wright (Muskoka)*.....*Not printed.*

70. Return to an order of the House of Commons, dated 29th November, 1906, for a copy of all circulars sent out by the immigration office during the present year to agents of the department in the United Kingdom, and on the continent of Europe; also to booking agents in the United Kingdom and on the continent. Presented 17th December, 1906.—*Mr. Chisholm (Huron)*.....*Not printed.*

70*a*. Return to an order of the House of Commons, dated 5th December, 1906, for a copy of all papers, circulars, instructions, or other correspondence, sent out by the Department of the Interior, or any officer thereof, relative to immigration; and all correspondence or papers, &c., relative thereto, from agents abroad during the year 1906, with special reference to question No. 2, on the Order Paper of 3rd December, 1906. Presented 17th December, 1906.—*Mr. Lefurgey*.....*Not printed.*

CONTENTS OF VOLUME 13—*Continued.*

71. Return to an order of the House of Commons, dated 28th November, 1906, for a copy of all letters, documents, telegrams, reports, writs of supersedeas, and other papers, relating to the standing and different grades in the civil service, from time to time, of Henry J. Morgan, and his superannuation. Presented 18th December, 1906.—*Mr. Stewart*..... ....*Not printed.*

72. Returned to an order of the House of Commons, dated 28th November, 1906, showing: 1. The names of fire insurance companies which have received their charters within the past five years. 2. The names of the parties applying for the same. 3. The amount of subscribed capital required under the charter. 4. The amount of paid-up capital required under the charter. 5. The proposed location of the head office in each case. Presented 17th December, 1906.—*Mr. Macdonell*..*Not printed.*

73. Return to an order of the House of Commons, dated 3rd December, 1906, showing: quantity or value of green fruit, canned fruits, and vegetables, fruit jams, preserves and jellies, classifying them wherever practicable, imported into Canada, and exported therefrom, during each of the past ten years; stating also whether from Great Britain, United States, or other countries; and during the past two years, the quantity imported through ports of entry, first, in Eastern Provinces; second, Prairie Provinces; third, British Columbia. Presented 9th January, 1907.—*Mr. Smith (Wentworth) Not printed.*

74. Return to an order of the House of Commons, dated 17th December, 1906, showing: 1. The total amount of duty received by the government in the fiscal year 1906 upon the respective articles named in the following items, as numbered, of the new Customs Tariff, viz: Item 445.—Mowing machines, harvesters, self-binding or without binders, binding attachments, reapers. Item 446.—Cultivators, ploughs, harrows, horse-rakes, seed drills, manure-spreaders, weeders and wind-mills. Item 447.—Threshing machine outfit, when consisting of traction or portable engines and separators. Item 448.—Hay loaders, potato diggers, horse-powers, separators, n.o.p., wind-stackers, fodder or feed cutters, grain crushers, fanning mills, hay tedders, farm, road or field rollers, post-hole diggers, snaths, and other agricultural implements, n.o.p. Item 449.—Axes, scythes, sickles or reaping hooks, hay or straw knives, edging knives, hoes, rakes, n.o.p., and pronged forks. Item 450.—Shovel and spades, iron or steel, n.o.p., shovel and spade blanks, and iron or steel cut to shape for the same, and lawn mowers. Item 451.—Stoves of all kinds, for coal, wood, oil, spirits or gas. 2. The total amount of duty that would have been received in the same period, the fiscal year of 1906, had the tariff now proposed by the government been then in force, giving such duty for each of the items 445, 446, 447, 448, 449, 450 and 451, separately. Presented 9th January, 1907.—*Mr. Henderson*..... ....*Not printed.*

75. Report of the Commissioner, Dominion Police Force, for the year 1906. Presented 9th January, 1907, by Hon. A. B. Aylesworth..... .....*Not printed.*

76. Return to an order of the House of Commons, dated 10th December, 1906, for a copy of all writs, forms and instructions issued and used in and for the purposes of the elections for the constituency of London, in the year 1905, and for the elections for the constituencies of East Elgin and North Bruce, in the year 1906. Presented 9th January, 1907.—*Mr. Barker* ....*Not printed.*

77. Return to an order of the House of Commons, dated 18th April, 1906, for a copy of all petitions, memorials, reports, letters, documents, correspondence and papers, setting forth or relating or referring to the necessity of improved aids to navigation, and of the life-saving vessels or appliances on the Pacific coast. Presented 9th January, 1907.—*Mr. Borden (Carleton)*.....*Not printed.*

78. Return to an order of the House of Commons, dated 18th April, 1906, for a copy of all reports, findings and recommendations of any officer, court of inquiry or commission, respecting the loss of any steamship or vessel on the Pacific coast during the past six years, except such as have already been published in the Annual Report of the Department of Marine. Presented 9th January, 1907.—*Mr. Borden (Carleton)*..... .... *Not printed.*

79. Return to an order of the House of Commons, dated 21st March, 1906, showing: How many wrecks there were on the Pacific coast in Canadian waters in 1900, 1901, 1902, 1903, 1904, 1905, and in 1906, up to date, British and foreign; number of lives lost in each wreck; the total financial loss in ships and cargoes; the inquiries made by the government into the causes of such wrecks; the causes given for such wrecks; the results of reports made of such investigations, as to hulls or machinery, by the British Columbia inspectors; the port of registry of each vessel wrecked; the age of each ship. Presented 9th January, 1907.—*Mr. Smith (Nanaimo)*.....*Not printed.*

CONTENTS OF VOLUME 13—*Continued.*

80. Return to an order of the House of Commons, dated 10th December, 1906, showing : The quantity of oil from the wells of the Memramcook and Dover, sold and delivered to the Intercolonial Railway, between the 1st of January, 1904, and the 31st of March, 1906 ; such statement to set forth in detail the dates, quantity, price, and total value of each of such shipments. And further for a similar statement giving like information in respect of all other oil purchased from or through the agency of the New Brunswick Petroleum Company, being the output of other wells than those herein above specified. Presented 9th January, 1907.—*Mr. Barker*..... ....*Not printed.*

81. Return to an order of the House of Commons, dated 10th December, 1906, showing : All sums paid from 1st January, 1904, to date, to George H. Cochrane, of Moncton, for supplies furnished or services rendered the Intercolonial Railway ; such statement in respect of each item in every such transaction, when and by whom the order was given, natuie of and the quantity of goods furnished, character of services rendered, prices paid, and the names of the parties who certified to the correctness of his account. Presented 9th January, 1907.—*Mr. Barker*..... ....*Not printed.*

82. Return to an order of the House of Commons, dated 18th December, 1906, giving comparative statement of the standard passenger tariff in force on the Intercolonial Railway in 1904, and that in force at the present time, said statement to be so arranged as to show the former and present passenger rates in convenient form for purposes of comparison, in each of the following cases : 1. From Truro (*a*) to Hopewell, to New Glasgow, to Pictou, to Antigonish, to Port Mulgrave, to Grand Narrows, to Sydney, to Glace Bay, to Louisburg ; (*b*) to Halifax, (*c*) to Londonderry, to Amherst, to Sackville, to Shediac, to Moncton, to Cape Tormentine. 2. From Moncton (*a*) to Salisbury, to Sussex, to Norton, to St. John ; (*b*) to Kent Junction, to Weldford, to Newcastle, to Dalhousie, to Campbellton. 3. From Lévis (*a*) to Berthier-en-bas, to St. Thomas de Montmagny, to Ste. Anne de la Pocatière, to River du Loup, to Rimouski, to Causapscal, to Metapedia ; (*b*) to Drummondville, to Ste. Rosalie, to Montreal. Presented 9th January, 1907.—*Mr. Ames*.....*Not printed.*

83. Return to an order of the House of Commons, dated 10th December, 1906, for a copy of all reports, investigations, orders, or correspondence, since 1st January, 1905, dealing with or touching upon alleged misconduct or remissions of duty on the part of (*a*) I. L. Burrill, paymaster on the Intercolonial Railway ; (*b*) Moses Tracey, inspector of car cleaners ; (*c*) Bruce McDougall, of the Intercolonial Railway Audit Office, Moncton ; together with a copy of the rules and regulations in force since above date, and at the present time, with reference to the employees of the Intercolonial Railway. Presented 9th January, 1907.—*Mr. Barker*..... .. ...*Not printed.*

84. Return to an order of the House of Commons, dated of 28th November, 1906, for a copy of the report furnished to the government by Messieurs Brunet and Duff, of Montreal, regarding the water-powers on the Lachine Canal. Presented 9th January, 1907.—*Mr. Monk*. .....*Not printed.*

85. Return to an order of the House of Commons, dated 10th December, 1906, showing, by means of a comparative statement, the difference in rates charged, in respect of the ten classes of articles most largely carried, under the standard freight tariff in force during 1904, and that in force at the present time upon the Intercolonial Railway, from station to station, as hereinafter specified : 1. From Truro (*a*) to Hopewell, to New Glasgow, to Pictou, to Antigonish, to Port Mulgrave, to Grand Narrows, to Sydney, to Glace Bay, to Louisburg ; (*b*) to Halifax : (*c*) to Londonderry, to Amherst, to Sackville, to Shediac, to Moncton, to Cape Tormentine. 2. From Moncton (*a*) to Salisbury, to Sussex, to Norton, to St. John ; (*b*) to Kent Junction, to Weldford, to Newcastle, to Dalhousie, to Campbellton. 3. From Lévis (*a*) to Berthier-en-bas, to St. Thomas de Montmagny, to Ste. Anne de la Pocatière, to River du Loup, to Rimouski, to Causapscal, to Metapedia ; (*b*) to Drummondville, to Ste. Rosalie, to Montreal. Presented 9th January, 1907.—*Mr. Ames*.....*Not printed.*

86. Return of all lands sold by the Canadian Pacific Railway Company, from the 1st October, 1905, to the 1st October, 1906. Presented 9th January, 1907, by Hon. F. Oliver.....*Not printed.*

87. Return to an order of the House of Commons, dated 5th December, 1906, for a copy of all documents relating to the application of R. C. McCracken for the northeast quarter, section 36, township 35, range 16, west of the second meridian, province of Saskatchewan ; also Mr. McCann, for the northwest quarter of the same section. Presented 9th January, 1907.—*Mr. Barr*.....*Not printed.*

88. Return to an order of the House of Commons, dated 17th December, 1906, showing : 1. The names, ages, sexes and parentage of children attending Muscoweguan's Indian boarding school, specifying whether treaty or non-treaty Indians, the band they belong to, and whether parents alive or not. 2. Amount of government grants made to the school during the years 1904, 1905 and 1906. 3.

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Amount of treaty money paid to Muscoweguan's band at the last payments, to what Indians were the payments made, and the number of children belonging to each. Presented 9th January, 1907.—*Mr. Lake* ..... *Not printed.*

89. Return to an order of the House of Commons, dated 5th December, 1906, for: 1. A copy of the evidence taken at the investigation promised by the Minister of the Interior at the last session of parliament into the conduct of W. T. R. Preston, Commissioner of Immigration in England; together with copies of all letters, documents, and papers, in any way relating thereto. 2. Copy of the report of the party or parties who held the investigation which was promised by the Honourable Mr. Oliver, Minister of the Interior, when the matter of the dismissal of Mr. W. T. R. Preston was under discussion at the last session of parliament. 3. Of all correspondence between W. T. R. Preston and any member of the government, or any department thereof, with reference to his present appointment. 4. And showing what government position W. T. R. Preston now holds, what his duties are, what salary he gets, what living and travelling expenses he is allowed. Presented 9th January, 1907.—*Mr. Wilson (Lennox and Addington)* ..... *Not printed.*

90. Return to an address of the House of Commons, dated 28th November, 1906, for a copy of all orders in council, agreements, valuations, reports, memoranda, letters, telegrams, correspondence and other documents and papers, touching, relating to or concerning the grant by or on behalf of the government of Canada, of any lands in Southern Alberta, under conditions contemplating or requiring the construction of irrigation works, and all such documents as aforesaid relating to any concession or grant of about 380,575 acres of land to the Robins Irrigation Company. Presented 9th January, 1907.—*Mr. Borden (Carleton)* ..... *Not printed.*

90*a*. Return to an address of the House of Commons, dated 28th November, 1906, for a copy of all orders in council, agreements, papers and correspondence in connection with the sale of 380,600 acres, more or less, of land in Southern Alberta, to the Robins Irrigation Company; and the list of shareholders of the company, and its officers. Presented 10th January, 1907.—*Mr. Borden (Carleton).* *Not printed.*

90*b*. Return to an order of the House of Commons, dated 3rd December, 1906, for a copy of all documents relating to the application of, (*a*) J. T. Robins, for land in townships 10, 11 and 12, ranges 7, 8, 9, 10, 11, 12, west of the 4th; and of (*b*) E. H. Cuthbertson, for land in townships 11, 12, 13, ranges 7, 8, 9. 10, 11 and 12, west of the 4th, for purposes of irrigation. Presented 10th January, 1907.—*Mr. Ames* ..... *Not printed.*

91. Return to an address of the House of Commons, dated 3rd December, 1906, for a copy of all orders in council, leases, agreements, valuations, reports, memoranda, letters, telegrams, correspondence, and other documents and papers, relating to, (*a*) the granting of grazing lease No. 2013, issued to J. D. McGregor, and of grazing lease No. 2014, issued to A. E. Hitchcock; (*b*) the assignment of said lease privileges to, or the enjoyment of the same, by the Grand Forks Cattle Company; (*c*) and further transfer or sale of said privileges by the Grand Forks Cattle Company; (*d*) all transactions between the government and the assigns of the Grand Forks Cattle Company. Presented 9th January, 1907.—*Mr. Ames* ..... *Not printed.*

91*a*. Return to an address of the House of Commons, dated 3rd December, 1906, for a copy of all orders in council, leases, agreements, valuations, reports, memoranda, letters, telegrams, correspondence, and other documents and papers, touching, relating to, or concerning, (*a*) the granting of grazing lease No. 2009, issued to C. E. Hall; (*b*) the enjoyment of said lease privileges by C. E. Hall; (*c*) the assignment of the same to the Milk River Cattle Company; (*d*) the enjoyment of the same by the Milk River Cattle Company; together with a statement showing all amounts received by the government by way of rentals, bonuses, or otherwise, from each of the parties herein above-mentioned, with date, amount, and object of each such payment. Presented 9th January, 1907.—*Mr. Ames.* *Not printed.*

91*b*. Return to an address of the House of Commons, dated 3rd December, 1906, for a copy of all orders in council, leases, agreements, valuations, reports, memoranda, letters, telegrams, correspondence, and other documents and papers, touching, relating to, or concerning, (*a*) the granting of grazing lease No. 2059, issued to H. P. Brown, of Grand Forks, Montana; (*b*) the assignment of said lease privileges to the Galway Horse and Cattle Company; and the enjoyment thereof by said company; (*c*) the further assignment of said lease privileges by the Galway Horse and Cattle Company to John Cowdry, of Macleod, and his enjoyment of the same, together with a statement showing all rentals or bonuses received by the government from any of the above parties, with date, amount, and purpose of each payment. Presented 9th January, 1907.—*Mr. Ames* ..... *Not printed.*

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91*c*. Return to an address of the House of Commons, dated 9th January, 1907, for a copy of all orders in council, agreements, valuations, reports, memoranda, letters, telegrams, correspondence and documents of every description, relating to or treating of (*a*) the granting of a closed grazing lease to Brown, Bedingfield, *et al*; (*b*) the enjoyment of and the payment for the privileges granted under said lease. Presented 7th February, 1907.—*Mr. Ames*.....*Not printed.*

91*d*. Return to an order of the House of Commons, dated 23rd January, 1907, for a copy of all applications for the lease of grazing lands within the provinces of Alberta and Saskatchewan, between the 1st day of February, 1905, and the 1st day of August, 1905. Presented 19th April, 1907.—*Mr. McCarthy (Calgary)*.....*Not printed.*

92. Return to an order of the House of Commons, dated 28th November, 1906, showing: 1. All sums of money paid to the North Atlantic Trading Company, or on their order, to 1st November, 1906, with dates, sums, and names of persons to whom paid. 2. All correspondence between the North Atlantic Trading Company and the government, or any member thereof, or any department, since 1st January, 1906. Presented 9th January, 1907.—*Mr. Wilson (Lennox and Addington)*..*Not printed.*

92*a*. Return to an order of the House of Commons, dated 17th December, 1906, showing: 1. All claims made on the government by the North Atlantic Trading Company, since the 31st March, 1906. 2. All amounts paid to the said North Atlantic Trading Company by the government of Canada, (*a*) on account of bonuses; (*b*) on account of disbursements, since the 31st March, 1906. 3. A copy of all correspondence had by the government with the said North Atlantic Trading Company since the 31st March, 1906, up to the 1st December, 1906, and of all letters and accounts received from the said company between the above dates. Presented 15th January, 1907.—*Mr. Monk*....*Not printed.*

92*b*. Report of C. H. Beddoe, accountant of the Department of the Interior, of an audit of the books and accounts of the North Atlantic Trading Company. Presented 1st March, 1907, by Hon. F. Oliver. *Printed for both distribution and sessional papers.*

92*c*. Extract from a Report of the Privy Council, approved by the Governor General on the 19th February, 1907, respecting continental immigration and certain commissions to steamship booking agents. Presented 14th March, 1907, by Hon. F. Oliver.....*Not printed.*

93. Return to an order of the House of Commons, dated 10th December, 1906, showing: All sums paid or credits given by the Record Foundry Company, of Moncton, in respect of purchases from the Intercolonial Railway of scrap iron, copper, babbit metal, lead, sheet lead, and scrap metal of every description, between 1st January, 1904, and 31st March, 1906; said statement to further show date and amount of every such transaction, character, quantity and price per pound, of material purchased and whether and in what instances the same has been offered in public competition or sale by tender. Presented 9th January, 1907.—*Mr. Barker*.....*Not printed.*

94. Return to an order of the House of Commons, dated 14th May, 1906, for a copy of all correspondence, reports, documents and papers relating to any dealings, transactions or negotiations between the government and any company, association, syndicate, or any person or persons on behalf of any company, association or syndicate, who have purchased or acquired, or arranged to purchase or acquire, public lands from the government since 1898; also a statement giving the names, head offices and addresses of the said respective companies, associations and syndicates, together with the amount of land purchased, acquired, or arranged to be purchased or acquired, and the price paid or agreed upon; also a statement giving the names, addresses and occupations of any person or persons, other than companies, associations or syndicates, who have purchased or acquired, or arranged to purchase or acquire, public lands from the government since 1st January, 1898, in areas of more than 160 acres in each instance, and a statement of the area of such lands in each instance; also a copy of all correspondence with such persons, and all documents and papers relating to the sale or disposal of such lands. Presented 10th January, 1907.—*Mr. Borden (Carleton)*.....*Not printed.*

95. Return to an address of the House of Commons, dated 18th December, 1906, for a copy of all orders in council, instructions, reports, letters, telegrams, correspondence and other papers of every kind relating to the negotiations for the Songhees Indian Reserve, and especially all such papers as aforesaid relating to the recent mission of Mr. Pedley, Deputy Superintendent General of Indian Affairs, to the province of British Columbia. Presented 11th January, 1907.—*Mr. Borden (Carleton)*.....*Not printed.*

96. Return to an order of the House of Commons, dated 10th December, 1906, showing the following data: (1) The name of the present homesteader on southeast quarter, section 12, township 30, range 2, west of 5th meridian; (2) date of his entry; (3) by whom it was made; (4) where was it

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made; (5) who was the first to make homestead entry therefor; (6) by whom was the first entry cancelled; (7) who was the next applicant, and what was the date of the application; (8) the names of any other applicants, if any, for this homestead, and the dates of application; all correspondence in regard to this quarter-section. Presented 11th January, 1907.—*Mr. Hughes (Victoria).* *Not printed.*

97. Return to an order of the House of Commons, dated 9th May, 1906, showing in detail for each year, from 1886 to 1906, inclusive; 1. A statement of all goods supplied to Mr. Speaker's apartments, and to the various offices and apartments of the House of Commons, and the amounts paid therefore. 2. All inventories of goods in Mr. Speaker's apartments, and in the various offices and apartments of the House of Commons, taken by the Sergeant-at-Arms, as keeper of the furniture and fittings of the House, or other officers of the House, and any report of the Clerk, Sergeant-at-Arms, or other officer of the House, with reference thereto, the goods supplied, their condition, and the character and disposition of the same. 3. A copy of all correspondence had between Mr. Speaker and any member of the Internal Economy Commission, the Clerk of the House, the Sergeant-at-Arms, or any other officer of the House of Commons, and the Auditor General, in reference to the purchase, payment, checking, distribution, replenishing, disposal, condition and character of the same. 4. A copy of all resolutions passed by the Commission of Internal Economy in reference to the above matters. Presented 11th January, 1907.—*Mr. Belcourt.* ..... *Not printed.*

98. Return to an address of the Senate, dated 5th June, 1906, for: 1. A copy of the petitions signed by the citizens of Quebec protesting against the choice of the place where Sir Charles Ross has built his rifle factory. 2. A copy of the petitions sent by certain persons asking the government to increase the land placed at the disposition of Sir Charles Ross. 3. A copy of the plan of the land placed at the disposition of Sir Charles Ross. 3. A copy of the plan of the land leased by the government to Sir Charles Ross for the purpose of his rifle factory. Presented 6th December, 1906.—*Hon. Mr. Landry* ..... *Not printed.*

98*a*. Return to an order of the House of Commons, dated 23rd January, 1907, for copies of all documents and all correspondence concerning the erection of the Ross rifle factory on the Plains of Abraham, Quebec. Presented 14th March, 1907.—*Mr. Lavergne (Montmagny)* ..... *Not printed.*

98*b*. Return to an address of the House of Commons, dated 10th December, 1906, for a copy of all contracts between the Ross Rifle Company and the government, or Department of Militia, for the supply of rifles, ammunition or other articles, and all orders in council, correspondence, reports, documents and papers, relating to such contracts, or to the subject-matter thereof, and to the operations of the company and its dealings with the government, or any department thereof, including the Department of Customs. Presented 14th March, 1907.—*Mr. Worthington.* . *Not printed.*

98*c*. Return to an address of the Senate, dated 27th November, 1906, for a copy of all correspondence exchanged between the government and the Ross Rifle Company or any other association or military body or any person whomsoever, or between the various departments of the government on the subject of the Ross rifle, of the inspections which it has undergone, of the improvements which have been suggested, of the complaints which have been made, or of the reports which have been made. Presented 13th March, 1907.—*Hon. Mr. Landry* ..... *Not printed.*

98*d*. Supplementary return to No. 98*b*. Presented 3rd April, 1907..... *Not printed.*

98*e*. Supplementary return to No. 98*c*. Presented (Senate) 4th April, 1907..... *Not printed.*

99. Revised Statutes of Canada, 1906, volumes 1, 2 and 3. Presented 14th January, 1907, by Hon. A. B. Aylesworth..... *Printed separately.*

100. Return to an order of the House of Commons, dated 9th January 1907, showing: The imports by provinces into Canada for home consumption, from the United States, and the exports of the same from Canada to the United States, and the duty on the same, giving the present Canadian duty and the United States duty, for the past twelve months, ending 1st October, 1906, on the following agricultural articles: Live pork, cattle, horses, beef and pork dressed, beans, corn, barley, buckwheat, peas, wheat, sugar, beets, eggs, hay, butter, cheese, apples, evaporated or otherwise, vegetables, green peas, tomatoes, peaches, plums, pears, including all canned vegetables, and lard, and tobacco, raw. Presented 15th January, 1907.—*Mr Clements* ..... *Not printed.*

101. Return to an order of the House of Commons, dated 5th December, 1906, for a copy of all correspondence between the Marine Department and the provincial government of British Columbia, or any member thereof, concerning the building of a road or trail along the coast line of Vancouver Island, for the purpose of lending assistance to distressed mariners. Presented 15th January, 1907.—*Mr. Smith (Nanaimo)* ..... *Not printed.*

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102. Return to an order of the House of Commons, dated 5th December, 1906, for a copy of all correspondence and papers in connection with the investigation into the provisioning of government steamer *Kestrel*, during the year 1905, and a copy of the report of the investigation. Presented 15th January, 1907.—*Mr. Foster* ..... *Not printed.*

102*a*. Return to an order of the House of Commons, dated 14th January, 1907, for a copy of all letters, telegrams, reports, memoranda and other documents and papers, respecting supplies purchased or ordered for or in connection with the government steamer *Kestrel*, from January 1st, 1903, up to the present time, including all correspondence between any department, officer or agent of the government, and the captain of the said steamer. Presented 12th April, 1907.—*Mr. Reid (Grenville).* *Not printed.*

103. Return to an order of the House of Commons, dated 10th December, 1906, showing the local and general tariffs of each and every through transportation line, railway or steamship line, giving in detail the rates upon each class of commodity from station to station; and also upon commodities passing through Canada, or from Canada to foreign countries, or to Great Britain and Ireland. Presented 17th January, 1907.—*Mr. Hughes (Victoria).* ..... *Not printed*

104. Return to an order of the House of Commons, dated 3rd December, 1906, showing for five years past the annual shipments across the Atlantic of: butter, cheese, apples, pears, other fruits and other products, classifying them (*a*) in cold storage; (*b*) in cool air compartments; (*c*) in ordinary storage. Presented 17th January, 1907.—*Mr. Smith (Wentworth).* ..... *Not printed.*

105. Return to an address of the House of Commons, dated 28th November, 1906, for a copy of all orders in council, reports, letters, telegrams, correspondence, memoranda and other documents and papers, relating to or in any way touching the purchase or acquisition of land in or near the city of Halifax, since 1st January, 1902, for the purpose of constructing thereon a round-house or machine shop. Presented 17th January, 1907.—*Mr. Barker.* ..... *Not printed.*

106. Return to an address of the Senate, dated 19th June, 1906, for copies of all correspondence between the Imperial authorities and the government of Canada relating to the uniform to be worn upon state occasions by privy councillors of the cabinet, privy councillors not of the cabinet, deputy heads of departments, and by any other of the government officials. Presented 16th January, 1907.—*Hon. Mr. Landry* ..... *Not printed*

107. Return to an address of the Senate, dated 7th December, 1906, for copies of all correspondence respecting a site or sites for a public building in the town of Glace Bay, Nova Scotia, between any member of the government and all other parties; the area of the sites, the price of each, the date of the purchase, the date of each payment, the name of the seller of each site, the report or reports of the government engineer, showing lots recommended and those not recommended by him, and all notes or memoranda referring to said sites. Presented 16th January, 1907.—*Hon. Mr. McDonald (Cape Breton)* ..... *Not printed*

108. Return to an address of the Senate, dated 5th December, 1906, for a copy of all the correspondence exchanged between the department of marine and fisheries, or any person or any company whatsoever on the subject of the stranding at Matane of the steamer *Kensington*, as well as of the inquiry which has been made into this subject and of the judgment rendered by the commissioner making the inquiry. Presented 16th January, 1907.—*Hon. Mr. Landry* ..... *Not printed.*

109. Return to an address of the Senate, dated 28th November, 1906, of imports of oxide of aluminum for the years 1903, 1904, 1905 and to date, 1906, with values. Presented 16th January, 1907.—*Hon. Mr. Domville* ..... *Not printed.*

109*a*. Return to an order of the Senate, dated 28th November, 1906, giving the amount of aluminum exported for the years 1903, 1904, 1905 and to date, 1906, with values. Presented 16th January, 1907.—*Hon. Mr. Domville* ..... *Not printed.*

110. Supplementary return to an order of the House of Commons, dated 14th March, 1906, showing, in the case of every homestead against which, during the years 1904 and 1905, a report of non-compliance with the law, or a demand for cancellation has been received by the Dominion land office or offices; giving (*a*) the location of said quarter-section, range, township, and meridian; (*b*) the name and address of the party by whom the original entry was made; (*c*) the name and address of the party or parties (if there have been several) who endeavoured to lodge cancellations; (*d*) the reason alleged by complainants why cancellation of entry should be allowed; (*e*) whether warning of threatened cancellation was served upon the alleged delinquent; (*f*) the action taken by the department in each case. Presented 21st January, 1907.—*Mr. Ames* ..... *Not printed.*

CONTENTS OF VOLUME 13—*Continued.*

111. Return to an address of the House of Commons, dated 10th December, 1906, for a copy of all orders in council, agreements, contracts, reports, telegrams, letters, and other documents, relating to any agreement between the government, or any departmtnt of the government, and Mr. W. A. D. Lees, or any other person or persons, for fencing a part or tract of land near Fort Saskatchewan, in Alberta; and all such documents and papers aforesaid, relating to the maintenance of such fence. Presented 21st January, 1907.—*Mr. Roche (Marquette)*..... *Not printed.*

112. Return to an order of the House of Commons, dated 17th December, 1906, for a copy of the ordinance or regulation of the Canadian militia by which young men following the three months' short course, day attendance, are stipulated as having no right to any indemnity for their services; also a copy of the ordinance or regulation of the Canadian militia by which young men from the country are not entitled to any pay for provisionary course, night attendance. Presented 21st January, 1907.—*Mr. Robitaille*..... *Not printed.*

113. Extract from a Report of the Committee of the Privy Council, approved by the Governor General on the 24th day of December, 1906, in relation to the leasing of the Beauharnois Canal, in order to its utilization for the development of electricity for lighting and industrial purposes. Presented 21st January, 1907, by Sir Wilfrid Laurier ..... *Not printed.*

114. Return to an order of the House of Commons, dated 14th January, 1907, showing: 1. All amounts which have been since 1st July, 1904, expended, chargeable to capital account, upon the strengthening of bridges along the line of the government railways. 2. The estimated cost of each work, which it is proposed to carry on during the fiscal year 1907-8. Presented 21st January, 1907.—*Mr. Crocket*..... *Not printed.*

115. Return to an order of the House of Commons, dated 14th January, 1907, for a copy of all correspondence, petitions and other papers, addressed to, or received by the department of railways and canals, from any persons, organizations, or associations, asking for the institution of a system of annuities for employees on the Intercolonial Railway. Presented 21st January, 1907.—*Mr. Macdonald*..... *Not printed.*

116. Return to an order of the House of Commons, dated 26th March, 1906, for a statement containing the following information concerning the water-powers in the possession and under the control of the Dominion government. 1. The province and the locality within the province where the water-power is situated. 2. A summary of the report or reports made to the government on such water-power, if any report has been made, with date of the report and name of the party who has reported. 3. The power susceptible of being developed. 4. If under lease or alienated in any way, the name of lessee or purchaser, date, duration and condition of lease or purchase. 5. If under lease or alienated, whether public tenders were called for through the newspapers before lease or alienation took place. 6. If under lease or alienated, whether any report was sought and obtained by the government previous to such alienation, and by what officer such report was made to the government, and the purport of such report, as well as its date. 7. If under lease or alienation in any way, the amount due the government for rent or price of sale and arrears. 8. If under lease or alienated, whether the conditions of alienation have been fulfilled. Presented 21st January, 1907.—*Mr. Monk.*
Printed for both distribution and sessional papers.

116*a*. Return to an address of the House of Commons, dated 28th November, 1906, for: 1. A copy of the contract or agreement by which the government has leased or alienated the water-powers on the Soulanges canal; of the tenders, if any were invited, before the disposal of said water-powers; and of any and all correspondence concerning the said powers before the disposal of the same by the government. 2. A copy of the order in council disposing of said water-powers. 3. A copy of all transfers of said water-powers since the original alienation of the same; of all correspondence relating to said transfers; and of orders in council authorizing or ratifying said transfers. 4. A copy of all reports and estimates in the possession of the government in regard to the extent and value of water-powers on the Soulanges canal. Presented 14th February, 1907.—*Mr. Monk*....*Not printed.*

116*b*. Return to an order of the House of Commons, dated 10th December, 1906, showing: (1) The water-powers, and location of same, along the Trent Canal waterways, still in possession of the government of Canada; (2) those along tributary waters under the same control; (3) the water-powers that have been leased, or otherwise disposed of; (4) the teams in each case; (5) the nature of the title in each instance. Presented 14th February, 1907.—*Mr. Hughes (Victoria)* ..... *Not printed.*

116*c*. Return to an order of the House of Commons, dated 27th February, 1907, for copies of all reports and other papers in connection with the choice of the eastern outlet for the Trent Valley Canal. Presented 27th February, 1907.—*Mr. Emmerson* ..... *Not printed.*

CONTENTS OF VOLUME 13—*Continued.*

116*d*. Report of E. J. Walsh, C.E., Engineer in charge of the surveys on the Trent Valley Canal, from Lake Simcoe to Georgian Bay, accompanied by plans, profiles and estimates. Presented 15th March, 1907, by Hon. H. R. Emmerson..... ... .*Not printed.*

117. Return to an order of the House of Commons, dated 5th December, 1906, for a copy of all letters, telegrams or documents of any description, relating to, (*a*) the appointment of Mr. F. W. Aylmer to the position of resident engineer of the Dominion Public Works at Winnipeg; and (*b*) his resignation of said position, together with all letters, telegrams, &c., interchanged between Mr Aylmer and any official of the public works department, in this connection. Presented 21st January, 1907.—*Mr. Ames*..... ....*Not printed.*

118. Return to an address of the House of Commons, dated 28th November, 1906, for a copy of all correspondence, tenders, offers of lease or purchase or occupation, of water powers under the control of the government of Canada, and of any deed of alienation of the same, whether by lease or otherwise, situate within one hundred miles of the city of Montreal. Presented 21st January, 1907.—*Mr. Monk*.... . ...*Not printed.*

119. Return to an order of the House of Commons, dated 9th January, 1907, for a copy of all papers and correspondence in connection with registered letters lost between Bethany and Millbrook, and other points in the county of Durham; more especially concerning a letter posted by one Joseph Hadden, of Bethany, to the Bank of Toronto, at Millbrook. Presented 24th January, 1907.—*Mr. Ward.*
Not printed.

120. Return to an order of the House of Commons, dated 3rd December, 1906, for a copy of all thermograph records of temperature on ocean-going vessels taken during the past season; stating names of vessel, and date of sailing, and port from whence sailing; also, stating if in cold storage chambers, cool air chambers, ventilated chambers, or unventilated chambers; also, in case of ventilated chambers, stating the method of ventilation. Presented 24th January, 1907.—*Mr. Smith (Wentworth).*
Not printed.

121. Return to an address of the House of Commons, dated 17th December, 1906, for a copy of: 1. All reports made from time to time by the officers of the topographical surveys branch of the department of the interior, in reference to land in townships 10, 11, 12 and 13, ranges 7, 8, 9, 10, 11, 12 and 13, west of the 4th, and townships 7, 8 and 9, ranges 8, 9, 10 and 11, west of the 4th. 2. Orders in council dated the 13th December, 1886, and 21st December, 1897, setting apart certain lands, viz.: those portions of the south half of section 7, the northwest quarter of section 9, and section 21, lying south and east of the river, township 12, range 12; that part of section 35 lying south and east of the river, township 11, range 13, and those portions of sections 1 and 2, lying east of the river in township 12, range 13, all west of the 4th meridian, as reserved for watering of stock. 3. Report of inspection referred to in order in council of 21st December, 1903, showing that the land referred to in orders in council dated 13th December, 1886, and 21st December, 1897, were no longer required for the purpose for which they were reserved. 4. All other reports made from time to time to date by officers of the department of the interior regarding the character and fertility of the soil, climate, rainfall, water supply, or topographical features of the area, or any part of the area described in paragraph 1 of this resolution. Presented 28th January, 1907.—*Mr. Ames* ....*Not printed.*

122. Orders in Council authorizing the granting of permits to foreigners and foreign corporations to bring fresh fish in American bottoms to any port in British Columbia, to land such fresh fish at such port without payment of duties and tranship the same in bond to any part of the United States of America, &c. Presented 28th January, 1907, by Sir Wilfrid Laurier ... . *Not printed.*

123. Return to an order of the House of Commons, dated 28th November, 1906, for a copy of all correspondence between the government, or any member or official thereof, and any member of the Royal Insurance Commission, or Mr. Shepley, K.C., or Mr. Tilley, barrister, or any other person employed by or on behalf of the government, relating in any way to the work of the commission, to the subjects and methods of conducting the inquiry, to suggestions as to what witnesses be called, what information be sought, and from whom; together with any reports received or transmitted in reference to the above; and also, for a copy of all instructions issued by the government, or any member thereof, to the commission, or any counsel employed thereat. Presented 29th January, 1907.—*Mr. Borden (Carleton)*..... ....*Not printed.*

123*a*. Report of the Royal Commission on Life Insurance. Presented 26th February, 1907, by Hon. W. S. Fielding..... .....*Printed for both distribution and sessional papers.*

CONTENTS OF VOLUME 13—*Continued.*

123*b*. Supplementary return to 123*a*. Memorandum of exhibits by companies. Presented 6th March, by Hon. W. S. Fielding..... *Printed for both distribution and sessional papers.*

123*c*. Supplementary Report of the Royal Commission on Life Insurance..... *See No. 123b.*

123*d*. Return to an address of the Senate dated 14th March, 1907, for the papers referred to as Exhibits Nos. 682, 686, 688, 737, 738, 740, and 741, in Sessional Paper No. 123*b*, being a supplementary return laid on the table of this house during the present session of parliament. Presented 4th April.—*Hon. Mr. Ferguson*..... *See No. 123b.*

124. Return to an address of the Senate, dated 16th January, 1907, showing: The tenders called for the supply of sleepers for any part whatsoever of the Transcontinental Railway by the Commissioners of the Transcontinental Railway. Who are the tenderers. What are the prices asked by each of them. Who obtained the contract. At what price and for what quantity. Has the contractor begun the execution of his contract. What quantity has he delivered up to this date. To whom, and at what place. What amount of money has he received in payment. Presented 24th January, 1907.—*Hon. Mr. Landry*..... *Not printed.*

125. Return to an order of the House of Commons, dated 18th December, 1906, for a copy of all correspondence between the five companies and the one individual whose hydraulic mining leases were cancelled during the past year, and the government, or any department thereof. Presented 29th January, 1907.—*Mr. Roche* (*Marquette*)..... *Not printed.*

126. Return to an order of the House of Commons, dated 16th January, 1907, for a copy of all papers and correspondence during the past year in connection with the leasing of any lands adjacent to Lake Manitoba for sporting or other purposes. Presented 29th January, 1907.—*Mr. Schaffner*.. *Not printed.*

127. Return to an address of the House of Commons, dated 28th November, 1906, for a copy of all correspondence between the government of Canada and the government of Australia, or any officials thereof, with reference to tariff preferences between the two countries; and all orders in council in reference thereto, for the years 1904, 1905, 1906. Presented 29th January, 1907.—*Mr. Borden* (*Carleton*)..... *Not printed.*

128. Return to an order of the House of Commons, dated 3rd December, 1906, showing the number of acres of Indian lands sold in each year since 1896, with the price received per acre, and where selected in each case; a statement of the manner in which said lands were sold in each case per acre, whether by public tender or private sale. If sold by tender, in how many papers were advertisements printed, in each case; also, giving the number of days from first appearance of such notice until tenders were closed, in each case; the amount paid the Indians, the expenses connected with the sales, and where the balance of these sales was deposited; also, a copy of all leases given by this government of Indian lands in the provinces of Manitoba, Saskatchewan, Alberta and British Columbia, since 1896; with a statement showing how such lands were leased, either by public tender or by private arrangement. Presented 29th January, 1907.—*Mr. Armstrong.* *Not printed.*

129. Return to an order of the House of Commons, dated 9th January, 1907, showing: 1. How many cheese curing buildings in all have been erected or provided by the government. 2. Where they are located. 3. The cost of each one, including care, and any other expense or expenses in connection therewith. 4. The charge, if any, made to the users of them. 5. What amount the government paid for transporting cheese from the factory to the curing rooms. The cost in connection with each factory, and the aggregate of all such costs up to date. 6. Who paid the charge for transportation from curing room when shipping; and if paid by the government, the aggregate of such costs to date. 7. The number of cheese manufacturers who have taken advantage of these curing rooms, and how many cheese have been stored by each, year by year, and the length of time each consignment has remained in the curing room. 8. The intention of the government to continue the use of these curing rooms for the future, or to extend them. 9. What disposition is to be made of those now owned by the government. Presented 1st February, 1907.—*Mr. Sproule*.... *Not printed.*

130. Return to an order of the House of Commons, dated 12th December, 1906, for a copy of all papers, and correspondence between the department of marine and fisheries and any person or persons, with reference to the sending of assistance and lifeboats to the relief of vessels recently wrecked on the north side of Prince Edward Island; and also papers and correspondence with reference to establishing life-saving stations and appliances at different points around the coast of Prince Edward Island. Presented 4th February, 1907.—*Mr. Lefurgey*..... *Not printed.*

CONTENTS OF VOLUME 13—*Continued.*

131. Return to an order of the House of Commons, dated 3rd December, 1906, for a copy of all correspondence and documents on file referring to the sale of any timber upon what is known as the "Light House" reserve, on Hope Island, in the Georgian Bay. Presented 4th February, 1907.—*Mr. Bennett*.....*Not printed.*

132. Copies of all correspondence between the Clerk of the Senate, and the Department of the Auditor General, and that of the Department of Justice, relating to the payment of sessional indemnity and travelling expenses to senators. Presented 1st February, 1907, by the Hon. The Speaker.
Not printed.

133. Pay and Allowances Regulations for the Canadian militia, to have effect from the 1st January, 1907. Presented 6th February, 1907, by Sir Frederick Borden.....*Not printed.*

134. Return to an order of the House of Commons, dated 30th January, 1907, for a copy of all accounts, vouchers, correspondence, documents and papers relating to the purchase of supplies forwarded or intended to be forwarded to Kingston, Jamaica, for the relief or assistance of sufferers from the recent disaster in that city. Presented 6th February, 1907.—*Mr. Taylor*.....*Not printed.*

135. Return to an address of the Senate, dated 23rd February, 1907, asking for the production before the house of all papers, orders, rules, charges, reports of inquiries, evidence, and judgment rendered, by any council of war or court-martial whatsoever, concerning a soldier of the ordnance corps by the name of Télesphore Roy, at Quebec, accused and found guilty of any offence whatsoever, and sentenced on that account to cells and hard labour; together with all documents relating to this matter, before and after the charge and the judgment of the military court; the names of the complainant, of the officers who sat on the court-martial, of the defender of the accused, of those who confirmed the judgment; and a copy of the record upon which were based both the judgment of the court martial and the confirmation by superior authority of the judgment rendered. Presented 6th February, 1907.—*Hon. Mr. Landry*.....*Not printed.*

136. Return to an address of the House of Commons, dated 10th December, 1906, for a copy of all orders in council, contracts, reports of experts or officials, and of all correspondence relating to the adoption and purchase of 250 subtarget guns, by the department of militia, and especially all letters passing between the Ontario Sub-Target Company (Limited), Mr. J. H. Jewell, Mr. Hartley Dewart, K.C., or any director or shareholder of the Sub-Target Company, and the Minister of Militia, or his private secretary, in reference to purchases or contracts, or agreements to purchase, either proposed or consummated, and payments made thereon or in pursuance thereof. Presented 7th February, 1907.—*Mr. Foster*.....*Not printed.*

136*a*. Supplementary return to No. 136. Presented 20th March, 1907.....*Not printed.*

137. Return to an address of the House of Commons, dated 30th January, 1907, for a copy of documents relating to the Metlakatla Indian Reserve, that is to say, a certain agreement with the province of Prince Edward Island in or about the year 1876, and mentioned in an order in council bearing date 2nd April, 1906, the said order in council and all recent correspondence dealing with the reserve. Presented 7th February, 1907.—*Mr. Borden (Carleton)*.....*Not printed.*

138. Return to an address of the House of Commons, dated 28th November, 1906, for a copy of all orders in council, agreements, valuations, reports, memoranda, letters, telegrams, correspondence, documents and papers, in connection with the sale or grant by the government of Canada, or any department thereof, since 1st January, 1905, of any public lands or public domain, other than to actual settlers. Presented 7th February, 1907.—*Mr. Borden (Carleton)*.....*Not printed.*

139. Return of the names of all persons appointed to or promoted in the Civil Service of Canada, during the calendar year 1906. Presented 14th February, 1907, by Sir Wilfrid Laurier.....*Not printed.*

140. Return to an address of the House of Commons, dated 28th January, 1907, for a copy of all orders in council, rules or regulations governing the operation and management of the Government Printing Bureau. Presented 14th February, 1907.—*Mr. Verville*.....*Not printed.*

141. Return to an order of the House of Commons, dated 3rd December, 1906, for a copy of all correspondence concerning the retirement from office of Mr. Talbot, late postmaster at Cannington, Ontario. Presented 14th February, 1907.—*Mr. Hughes (Victoria)*.....*Not printed.*

142. Return to an order of the House of Commons, dated 30th January, 1907, showing what life-saving stations are maintained on the sea coasts and inland waters of Canada, when the same were erected, respectively, and at what cost, respectively, and the cost of maintenance of each of same, during the last ten years. Presented 14th February, 1907.—*Mr. Boyce*.....*Not printed.*

CONTENTS OF VOLUME 13—*Continued.*

143. Return to an address of the House of Commons, dated 30th January, 1907, for a copy of all papers, memorials, memorandums, documents and correspondence between the provincial assembly and provincial government of Manitoba, and the Dominion Parliament and Dominion Government during the past ten years, in reference to the extension of the boundaries of Manitoba. Presented 18th February, 1907.—*Mr. Roche (Marquette)*..... *Not printed.*

144. Despatches and orders in council relative to Colonial Conference, 1907, from 20th April, 1905, to 15th February, 1907. Presented 18th February, 1907, by Sir Wilfrid Laurier.
Printed for both distribution and sessional papers.

145. Return to an address of the House of Commons, dated 28th January, 1907, for a copy of all orders in council, letters, papers, correspondence and documents relating to or connected with the resignation of Mr. Alexander Henderson as judge of the county court of British Columbia. Presented 18th February, 1907.—*Mr. Borden (Carleton)*..... *Not printed.*

146. Return to an order of the House of Commons, dated 6th February, 1907, showing the number of persons employed in the House of Commons, (*a*) as permanent employees, and in what capacity; (*b*) as sessional employees, and in what capacity; (*c*) the salary of each such employee; (*d*) the name of each employee of the house, or connected with the service of the house, as translators or otherwise, not living at Ottawa; (*e*) where each employee lives, and what his salary or remuneration is. Presented 18th February, 1907.—*Mr. Bergeron*..... *Not printed.*

146*a*. Return to an order of the House of Commons, dated 6th February, 1907, showing where all the clerical work of the House of Commons is done, (*a*) the ordinary routine work; (*b*) all the translation; (*c*) how much is paid to translators not living in Ottawa, or working at their homes in Ottawa, per day, or how paid; (*d*) how much was paid last year for all such services in the House of Commons. Presented 18th February, 1907.—*Mr. Bergeron*..... *Not printed.*

147. Copy of order in council respecting the landing of fresh fish in American bottoms and the purchase of supplies by such vessels, in ports of British Columbia,—and also copy of instructions to the collector of customs, Vancouver, B.C., respecting the same. Presented 19th February, 1907, by Hon. W. Paterson..... *Not printed.*

148. Return to an address of the House of Commons, dated 6th February, 1907, for a copy of all orders in council, reports, letters, telegrams, accounts, vouchers, documents and other papers since the 1st January, 1902, relating to the surrender of the whole or any portion of the Nipissing Indian Reserve. Presented 20th February, 1907.—*Mr. Taylor*..... *Not printed.*

149. Return to an address of the Senate, dated 29th of January, 1907, for copies of all reports received by the government or any member thereof, relating to the establishment of an experimental branch farm in Prince Edward Island, and any order in council made regarding the same; also a statement showing what tract of land, if any, has been purchased for the purposes of the said farm, where it is located, the number of acres acquired, the price paid for the same, and the name of the vendor. Presented 19th February, 1907.—*Hon. Mr. Ferguson*..... *Not printed.*

150. Return (in so far as the department of the interior is concerned) to an address of the House of Commons, dated 6th February, 1907, for a copy of all orders in council in connection with the land grants or subsidies to the following railways: The Manitoba and Southeastern Railway Company, the Lake Manitoba Railway and Canal Company, the Hudson Bay Railway Company, the Winnipeg and Great Northern Railway Company, and all other railways now part of The Canadian Northern Railway Company's system, west of the province of Ontario. Presented 21st February, 1907.—*Mr. McCarthy (Calgary)*..... *Not printed.*

151. Correspondence respecting the vacancy on the Bench of the Supreme Court of Nova Scotia. Presented 21st February, 1907, by Hon. A. B. Aylesworth..... *Not printed.*

152. A statement of the affairs of the British Canadian Loan and Investment Company, as on 31st December, 1906. Presented 22nd February, 1907, by the Hon. The Speaker..... *Not printed.*

153. Return to an order of the House of Commons, dated 6th February, 1907, showing: In respect of items "Locomotive and car shops, and land purchase at Moncton, $540,000" and "New machinery for locomotive and car shops, $72,500", in the Appropriation Act of 1906, Schedule B, page 29, all expenditures made thereunder up to December 31st, 1906, said statement to specify in respect of each payment, the date of the transaction, the nature of the goods supplied or service rendered, name of the person or company to whom the consideration was paid. Presented 25th February, 1907.—*Mr. Crocket*..... *Not printed.*

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154. Return to an order of the House of Commons, dated 21st January, 1907, for a copy of all reports, papers, surveys, estimates, correspondence and other documents, with reference to the proposed branch line from the Prince Edward Island Railway at or near O'Leary, to a point at or near West Cape. Presented 25th February, 1907.—*Mr. Lefurgey*..... *Not printed.*

155. Return to an order of the House of Commons, dated 3rd December, 1906, for a copy of all correspondence, contracts, appointments of overseers, in respect to Port Bruce Harbour, in the county of Elgin, Ontario, since 1st January, 1905; also a return showing voucher pay-sheets, amount of new material used, from whom purchased, of all day or contract work on said harbour, giving the names of overseers and when appointed, from same date. Presented 26th February, 1907.—*Mr. Marshall.* *Not printed.*

156. Return to an order of the House of Commons, dated 6th February, 1907, showing: 1. What government dredges operated in the maritime provinces during the years 1900-1, 1901-2, 1902-3, 1903-4, 1904-5, 1905 6. 2. At what ports or places in the maritime provinces dredging was carried on during said years, giving the name of the dredge operating in each place, the number of days each dredge was employed, and the number of cubic yards excavated at each place where dredging was carried on. 3. Where said dredges are at present. Presented 26th February, 1907.—*Mr. Sinclair.* *Not printed.*

157. Return to an address of the House of Commons, dated 28th November, 1906, for a copy of all orders in council, valuations, letters, telegrams, correspondence, memoranda, conveyances and other documents and papers, from the first day of January, 1900, to the present time, relating to the proposa to acquire lands at Truro, Nova Scotia, for the Intercolonial Railway, and especially all such documents as aforesaid relating to the acquisition of land purchased by the Crown from H. W. Yuill by deed bearing date on or about the 17th October, 1904; also a copy of conveyances bearing date in October, 1904, under which the said Yuill acquired the said property; also all reports touching the question of sites for the construction of a round-house at Truro. Presented 28th February, 1907.—*Mr. Borden (Carleton)*..... *Not printed.*

158. Return to an order of the House of Commons, dated 11th February, 1907, showing: 1. What work the Railway Department ordered and performed at public expense to rail and ballast the whole or part of a branch railway from the Intercolonial Railway to the Wallace Quarries, Cumberland County, Nova Scotia, and what length was railed or ballasted. 2. From what point and for what distance the department conveyed ballast for the said work. 3. The length of said branch line. 4. Why the said branch line was not extended to Wallace Village, and what distance farther than constructed it would be necessary to build to give Wallace Village rail connection. 5. If the department hauls cars to said Wallace Quarries at public expense, and why it is done. 6. If shunting charge on the said branch line was cancelled, when it was cancelled, and for what reason. 7. At whose instance or request, or for whose benefit the above-mentioned work was done, and the shunting charge cancelled. 8. How much the department has expended for work on construction of said branch line. 9. Who the owners or operators of the said Wallace Quarries are. 10. What the freight rates collected by the department over the said branch lines are. 11. What similar or any concessions in the matter of construction, reduction of freight rates, or cancellation of shunting charges, to or in relation to any other quarries operated at or near Wallace have been granted by the department. 12. What other quarries operating at or near Wallace, and doing business over the Intercolonial Railway, are charged freight rates or shunting charges, or both, upon or in respect to any branch line used by them. 13. What companies are so operating, and what charges the department makes against them. 14. What owners or operators of the Wallace Quarries above-mentioned are related to the minister of railways, who they are, and how related. Presented 28th February, 1907.—*Mr. McLean (Queen's)*..... *Not printed.*

159. Return to an order of the House of Commons, dated 18th February, 1907, showing: Summary of stock, implements, chattels, grain, hay, roots, and all other kinds of fodder, and their value, on the first day of December, for the years 1905-1906 on the Central Experimental Farm, Ottawa. Presented 28th February, 1907.—*Mr. Jackson (Elgin).* ..... *Not printed.*

160. Return to an order of the House of Commons, dated 10th December, 1906, for a copy of the correspondence, telegrams, tenders, and engineer's estimate, in reference to letting the contract for the construction of extension pier at Port Daniel, in county of Bonaventure, on 30th May, 1904. Presented 1st March, 1907.—*Mr. Martin (Queen's)*..... *Not printed.*

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161. Return to an order of the House of Commons, dated 3rd December, 1906, for a copy of all correspondence, contracts, appointments of overseers, in respect to Port Burwell Harbour, in the county of Elgin, Ontario, since 1st January, 1905; also a return showing pay-sheets, amount of new material used, from whom purchased, of all day or contract work on said harbour, giving names of overseers, and when appointed from the same date. Presented 1st March, 1907.—*Mr. Marshall.* *Not printed.*

162. Copy of Deed, Joseph H. Henderson *et ux* to His Majesty the King, for 34.78 acres of land in the city of Halifax, N.S., for the Intercolonial Railway. Presented 1st March, 1907, by Hon. H. R. Emmerson..... *Not printed.*

163. Return to an order of the House of Commons, dated 3rd December, 1906, showing: 1. The present indebtedness to the Dominion Government of the Montreal Turnpike Trust, (*a*) on capital account; (*b*) for arrears of interest. 2. The amount collected at each toll-gate belonging to the said Turnpike Trust during the year ending 31st December, 1905. 3. The names of all parties who have commuted their tolls, and the amount of commutation paid in each case. 4. The amounts expended on each section or road division under the control of said trust, during the said year, ending 31st December, 1905, and the contracts given out during the year, with the name of the contractor, and the date and amount involved in each case. 5. The amount paid out during the said year at each toll-gate and check-gate for salaries of day and night keepers, and other expenditures at each of the toll-gates maintained. 6. The names of all parties holding passes for free use of the road, under the control of said trust, during the said year. 7. The expense of the said trust during the said year, for rent, salaries of the office, giving name and remuneration of each official. 8. The actual indebtedness in detail of the said trust, outside of its bonds, due to the government of Canada. 9. The amount collected during the year 1905 from municipalities, under special agreements made, as their share, pro rata, of the bonded indebtedness of the Turnpike Trust. Presented 1st March, 1907.—*Mr. Monk*..... *Not printed.*

164. Return to an order of the House of Commons, dated 16th January, 1907, showing: 1. What amounts were paid into the office of the receiver general during the fiscal year 1905-1906 on account of contractors' deposits for security, and by what contractors these sums were paid. 2. The deposits forfeited to the government during the said fiscal year, names of the contractors and the amounts so forfeited. 3. Cheques received as security from contractors during the said fiscal year, held by the departments which received them, and from whom they were received. 4. The total amount now in the hands of the receiver general and of the several departments, respectively, belonging to this account. Presented 1st March, 1907.—*Mr. Foster*..... *Not printed.*

165. Return to an address of the House of Commons, dated 10th December 1906, (in so far as the department of customs is concerned), for a copy of all orders in council, correspondence, and all other papers, relating to the Standard Chemical Company (Limited), or Peuchen & Co., in its dealings with the Customs and Inland Revenue Departments, from the date of the incorporation of the said company to the present date. Presented 1st March, 1907.—*Mr. Robitaille*..... *Not printed.*

166. Return (in so far as the department of the interior is concerned) to an address of the Senate dated 7th February, 1907, calling for the orders in council of the 11th of May, 1885, and the 5th of March, 1895, allotting lands in the Northwest Territories under the authority of the Act of 1884, chapter 25, section 7, and all orders in council passed since 1895, relating to grants of lands for this purpose. Also copies of all contracts between the Canadian Northern Railway Company and the government relating to the construction of a line of railway to the Hudson Bay or any portion of the said line of railway. Presented 21st February, 1907.—*Hon. Mr. Ferguson*..... *Not printed.*

167. Return to an order of the House of Commons, dated 9th January 1907, showing all timber lands in the railway belt in the province of British Columbia, sold or leased by the government, or any department thereof, since the 1st July, 1896, the description and area of such lots, the applications made therefor, the notice of advertisement for sale or tender, the tenders received, the amount of each tender, the tenders accepted, the name and address of the person or company to whom each lot was sold or leased. Presented 4th March, 1907.—*Mr. McCarthy (Calgary)*.. *Not printed.*

167*a*. Return to an order of the House of Commons, dated 11th March, 1907, showing: The timber lands sold or leased by the department of the interior subsequent to the date of those included in Sessional Paper No. 90, brought down to the house on the 9th of April, 1906; the description and area of such lands, the applications made therefor, the notice of advertisement for sale or tender, the tenders received, the amount of each tender, the tenders accepted, the name of the person or com-

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pany to whom each lot was sold or leased, and the name and address of each person or company to whom any of such leases have been transferred. Presented 9th April, 1907.—*Mr. Ames. Not printed.*

167*b*. Return to an order of the House of Commons, dated 8th April, 1907, showing, in respect of timber berths Nos. 824, 1062, 1107, 1108, 1171 and 1212, all bonuses, rentals or dues paid to date by the lessees or other assigns to the government, together with a copy of all applications, correspondence, reports, advertisements, tenders, leases, transfers, or memoranda of any description, and a copy of the regulations of the department of the interior in force at the time said timber berths were leased, and the corresponding regulations in force at the present time. Presented 26th April, 1907.—*Mr. Boyce* ..... *Not printed.*

168. Return to an order of the House of Commons, dated 4th March, 1907, showing : 1. How much money has been paid by the government of Canada in the form of bounties on lead. 2. To what companies the same has been paid. 3. Where the mines are located. Presented 4th March, 1907.—*Mr. Marshall*..... *Not printed.*

169. Return to an address of the House of Commons, dated 11th February, 1907, for a copy of all correspondence, reports and letters, between this government and the government of the United States, relating to rural free delivery. Presented 5th March, 1907.—*Mr. Armstrong*..... *Not printed.*

170. Return to an order of the House of Commons, dated 11th February, 1907, showing the names of the employees of the Brandon Post Office during the year ending June 30th, 1906, and salaries received by them, respectively ; also names and salaries of those now employed in the office ; also amount paid by the postmaster for help and expenses for year ending June 30th, 1906. Presented 5th March, 1907.—*Mr. Roche (Marquette)*..... *Not printed.*

71. Return to an order of the House of Commons, dated 3rd December, 1906, for a copy of all correspondence, contracts, appointments of overseers, in respect to Port Stanley Harbour, in the county of Elgin, Ontario, since 1st January, 1905 ; also a return showing pay-sheets, amount of new material used, from whom purchased, of all day or contract work on said harbour, giving names of overseers, and when appointed from the same date. Presented 5th March, 1907.—*Mr. Marshall. Not printed.*

172. Return to an order of the House of Commons, dated 28th January, 1907, showing : In respect of the special inspection undertaken in April last of all unpatented homesteads entered for prior to 1st September, 1905, in the Alameda, Battleford, Regina and Yorkton land districts (referred to in Part I, page 4, of the Report of the Department of the Interior, 1905-6 : (*a*) the report of the Inspector of Dominion Land Agencies ; (*b*) the instructions issued to the several land agents and homestead inspectors ; (*c*) all correspondence between the department of the interior and the aforesaid agencies in respect to the necessity or desirability of such inspection, the manner in which it should be conducted, and the action to be taken in consequence of the facts brought out by such inspection. Presented 6th March, 1907.—*Mr. Ames*..... *Not printed.*

173. Return to an address of the Senate, dated 13th June, 1906, for a copy of the correspondence exchanged between the Honourable Mr. Landry and the Right Honourable Sir Wilfrid Laurier, and between the latter and the Department of Militia and Defence, on the subject of the refusal by that department to translate and to cause to be published in French the regulations for the militia which were published, in English only, in the *Canada Gazette*, of the 5th May last. Presented 5th March, 1907.—*Hon. Mr. Landry*..... *Not printed.*

174. Return to an order of the House of Commons, dated 18th February, 1907, for a copy of all regulations submitted by the government to trans-Atlantic steamship companies for their guidance in regard to stowing of perishable products, or temperatures to be maintained in cold storage, or cold air chambers, or ventilation required in ordinary storage chambers on their steamships. Presented 7th March, 1907.—*Mr. Smith (Wentworth)*..... *Not printed.*

175. Return to an order of the House of Commons, dated 23rd January, 1907, for a copy of all correspondence and written communications between judges of the Provincial Courts and the Minister of Justice, or any member or official of the government, since the passing of the Dominion Act 4-5 Edward VII, chapter 31, in reference to section 7 of said Act, or in reference to judges acting as executors, administrators or trustees of estates, directors or managers of companies, corporations or firms, or arbitrators, umpires or referees in matters of controversy, or engaging in other extrajudicial work ; and including a copy of a circular letter to judges issued by the Minister of Justice, and referred to by the Minister in *Hansard* for First Session of 1906, at page 869, and of the answers of the judges to the circular. Presented 8th March, 1907.—*Mr. Lennox*..... *Not printed.*

CONTENTS OF VOLUME 13—*Continued.*

176. Return to an order of the House of Commons, dated 28th January, 1907, for a copy of the report of Mr. C. W. Speers, General Colonization Agent, in respect of the special inspection and enumeration which was made of the Doukhobor colonies during the year 1905-6, together with the instructions which led up to it, and the report of the inspectors engaged in the work (without census sheets), and any correspondence in connection with or arising out of the same. Presented 8th March, 1907.—*Mr. Ames*.....*Not printed.*

177. Return to an order of the House of Commns, dated 28th February, 1907, for a copy of all correspondence in regard to the mission of W. L. Mackenzie King, Deputy Minister of Labour, to England, to secure legislation by the British Parliament to prevent fraudulent representations being made in that country to induce emigration to Canada; also a copy of the legislation enacted as a result of such mission. Presented 8th March, 1907.—*Mr. Smith (Nanaimo)*.....*Not printed.*

178. Return to an order of the House of Commons, dated 18th February, 1907, for a copy of the report respecting the selection and location of 3,500,000 acres in the Peace River District of British Columbia, which has been prepared upon the exploratory survey mentioned by the Minister of the Interior on the 7th February in the House of Commons. Presented 11th March, 1907.—*Mr. Borden (Carleton)*.....*Printed for sessional papers.*

179. Return to an order of the House of Commons, dated 20th February, 1907, showing all timber licenses over Indian lands in the territorial district of Algoma granted or rented by the government since 1896; returns of such licenses or rentals, the area covered by each of the same, the names and address of the several licensees, and the prices or rentals paid, respectively, and any conditions which may be attached to the same, respectively. Presented 12th March, 1907.—*Mr. Boyce*.....*Not printed.*

180. Return to an order of the House of Commons, dated 25th February, 1907, for a copy of all correspondence, documents and papers, accounts, agreements, grants and memoranda respecting the application for and sale of timber lands in the townships of Fisher, Haviland and Tilley, in the district of Algoma, on the 21st of November, 1900, by the Superintendent General of Indian Affairs, to Messrs. Wilson, Reeser and Philp. Presented 12th March, 1907.—*Mr. Boyce*.....*Not printed.*

181. Return to an order of the House of Commons, dated 10th December, 1906, for a copy of all reports made by superintendents of experimental farms in Canada regarding the results of experiments made during the past season to test the value of fish scrap produced at the government reduction works at Canso, Nova Scotia, as a fertilizer. Presented 12th March, 1907.—*Mr. Sinclair*. *Not printed.*

182. Return to an order of the House of Commons, dated 25th February, 1907, showing what statistical matter has been omitted from the Canada Year-book, 1905, which it has been customary to include in the Year-book of former years; and also where such omitted information can be found if published elsewhere. Presented 12th March, 1907.—*Mr. Kemp*.....*Not printed.*

183. Return to an order of the House of Commons, dated 11th February, 1907, showing: 1. What control the government has over the teachers in the Indian schools of Canada. 2. Whether or not the teachers are compelled by law to have certificates before accepting a position in the Indian schools of Canada. 3. How many teachers in the Indian schools of Canada have first class certificates, how many second class certificates, how many third class certificates, and how many are teaching on permits. 4. What standard of school books are used in said schools, and if said books are issued under instructions, from the department of Indian affairs, or issued by the department, or by what authority said books are issued, and who has charge of the issuing of such books. 5. Any regulations relating to education of Indians passed by this government since 1896, and the nature of said regulations. 6. The regulations, if any, that have been passed since 1896 relating to teachers in Indian schools. Presented 13th March, 1907.—*Mr. Armstrong*.....*Not printed.*

184. Return to an order of the House of Commons, dated 25th February, 1907, for a copy of all correspondence had between the Attorney General of New Brunswick, or any other member of the New Brunswick government, and the Minister of Justice, or any other member of the Dominion government, touching or in any way relating to the reorganization of the Supreme Court of New Brunswick. Presented 13th March, 1907.—*Mr. Crocket*.....*Not printed.*

185. Return to an order of the House of Commons, dated 20th February, 1907, showing: 1. The names of every officer, non-commissioned officer and man, of the Second Rifles Royal Canadian Regiment, the Canadian Mounted Rifles, the Royal Canadian Field Artillery, and the Strathcona Horse, and the South African Constabulary, who enlisted from the province of British Columbia, in order to take part in active military operations in South Africa. 2. The names of all British Columbians

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who served with or embarked for service with the British forces in South Africa who were not members of the above corps. 3. The names of all British Columbians who were regularly appointed to the medical staff, and were actively engaged in said military operations. 4. The names of nurses, hospital dressers, and orderlies, resident in British Columbia, who were actively engaged in said military operations. Presented 13th March, 1907.—*Mr. Ross (Yale-Cariboo)*..... .....*Not printed.*

186. Return to an order of the House of Commons, dated 23rd January, 1907, for a copy of all correspondence, with the papers and reports made by superior officers of the Department of Marine and Fisheries, or by Captain Wakeham, or any other person, regarding the dismissal from the service of R. P. Dubé, second mate on board *La Canadienne* ; also for a copy of the report made by the said R. P. Dubé to the Department of Marine and Fisheries regarding the fire on the *Aberdeen*, on the 10th November, 1905. Presented 13th March, 1907.—*Mr. Gauvreau*..... .....*Not printed.*

187. Return to an order of the House of Commons, dated 11th February, 1907, for a copy of the record and all proceedings in the suit in the Exchequer Court of Canada between the King, on the information of the Attorney General of the Dominion of Canada, and H. E. Lyon, plaintiffs, and Malcolm McKenzie and Felix A. Montalbetti, defendants, including all correspondence in connection therewith between the Department of Justice and the Department of the Interior, or any officers thereof, respectively, and between either of the said departments, or any officers thereof, and any other person or persons whatsoever ; and including all documents or memorandum in any way relating to the said suit, including instructions to counsel engaged therein on behalf of the plaintiffs ; and also all documents on file in the Department of the Interior, relating to the northeast quarter of section 35, in township 7, range 4, west of the 5th meridian. Presented 18th March, 1907.—*Mr. Herron*..... .....*Not printed.*

187*a*. Supplementary return to No. 187. Presented 10th April, 1907..... .....*Not printed.*

188. Return to an order of the House of Commons, dated 23rd January, 1907, showing : All sales of Dominion lands of 160 acres and upwards, in Manitoba, Saskatchewan and Alberta, which have been made by the government, exclusive of school lands, since the 1st January, 1905, with the price obtained, and dates of sale. Presented 19th March, 1907.—*Mr. Lake*.....*Not printed.*

189. Return to an address of the Senate, dated 6th March, 1907, for copies of all correspondence between the government of Canada or any member thereof with any person whatsoever, and any report from any officer of the government regarding the question of pensions by the state to deserving persons of advanced age ; and also a copy of a Bill referred to by the Right Honourable the Minister of Trade and Commerce during a speech made by him in the Senate on the 28th February last, dealing with the sale of annuities by the government of Canada. Presented 19th March, 1907.—*Hon. Mr. Ferguson*..... .....*Not printed.*

190. A statement in pursuance of section 17 of the Civil Service Insurance Act for the year ending 30th June, 1906. Presented (Senate) 15th March, 1907, by Hon. R. W. Scott.... .....*Not printed.*

191. Return to an address of the House of Commons, dated 28th March, 1906, for copies of all orders in council, reports, memoranda, correspondence, valuation, documents and papers, of every kind and nature and description, relating to the property situated on the south side of Spring Garden Road, in the city of Halifax, upon which the old drill shed was or is situated ; or relating to the leasing, conveying, disposal, or user of the said property, or of any property conveyed to the crown in consideration or in part consideration therefor. Presented 22nd March, 1907.—*Mr. Fowler*..*Not printed.*

192. Return to an order of the House of Commons, dated 11th February, 1907, for a copy of all reports or correspondence between the Railway Commission and the Department of Justice, concerning the trial of one Atkinson, on a charge of manslaughter, in connection with the collision which took place on the Grand Trunk Railway at Richmond, Quebec, in August, 1904. Presented 22nd March, 1907.—*Mr. Worthington*..... .....*Not printed.*

193. Return to an order of the House of Commons, dated 6th February, 1907, for a copy of all correspondence, telegrams, orders in council, and all other papers and documents in possession of the government, or any member or official thereof, in any way relating to the purchase by the government of what is known as the Warburton property in Charlotteown, for a rifle range, and a right of way for approach to the Hillsboro' bridge. Presented 25th March, 1907.—*Mr. Lefurgey.* *Not printed.*

193*a*. Supplementary return to No. 193. Presented 15th April, 1907..... ... . *Not printed.*

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194. Return to an address of the House of Commons, dated 17th December, 1906, for a copy of all orders in council, advertisements for tenders, tenders, specifications of every kind, plans, drawings, reports, letters, telegrams, correspondence, contracts, agreements and other documents and papers of every kind, touching or relating to the construction of immigration buildings in the city of Winnipeg, since 1st January, 1900. Presented 25th March, 1907.—*Mr. Borden (Carleton).* *Not printed.*

194*a*. Supplementary return to 194. Presented 19th April, 1907..... .....*Not printed.*

195. Return to an order of the House of Commons, dated 4th March, 1907, showing: The number of desks of every kind and description, with prices of the same, bought for the House of Commons by the government, since 1896. (Particulars of purchases by Stationery Branch and the Sergeant-at-Arms.) Presented 25th March, 1907.—*Mr. Bergeron*..... .....*Not printed*

196. Return to an order of the House of Commons, dated 4th March, 1907, showing: 1. The chief differences in principle between the Ross rifle and the Snider-Enfield, the Martini-Henry and the Lee-Enfield. 2. The average annual number of each, the Ross rifle and the Lee-Enfield rifle, manufactured. 3. The various kinds of rifle "sights" for which adoption has been sought in recent years. 4. The number of accidents to men in Canada from each, the Lee-Enfield and the Ross rifle. 5. The breakages or disabled rifles of each class recorded. Presented 25th March, 1907.—*Mr. Hughes (Victoria).* *Not printed.*

197. Return to an address of the House of Commons, dated 17th December, 1906, for a copy of all orders in council, advertisements for tenders, tenders, specifications, plans and drawings, reports, letters, telegrams, correspondence, contracts and other documents and papers of every kind, touching or relating to the construction of a post office building at Vancouver, British Columbia. Presented 27th March, 1907.—*Mr. Borden (Carleton)* .....*Not printed.*

198. Return to an order of the House of Commons, dated 11th February, 1907, for a copy of all letters, reports and other papers connected with the cutting of a channel into a lake at Red Head, Shelburne Co., N.S., for the purpose of connecting it with the sea. Presented 2nd April, 1907.—*Mr. Gunn.* *Not printed.*

199. Return to an order of the House of Commons, dated 14th January, 1907, showing: The number of miles of government telegraph lines, respectively, in each of the provinces and districts of Canada, the points between which they run, and the various stations on each line, and population of the same, the working expenses and receipts, respectively of each station and line for the ten years ending December 31st, 1906; the amount that has been spent yearly during the ten past years, (*a*) on construction of new lines or extensions; (*b*) on repairs and maintenance of existing lines; and the total expenditure for, (*a*) construction; (*b*) repairs and maintenance of the present government telegraph lines, and the receipts and working expenses thereof by years. Presented 27th April, 1907.—*Mr. Foster*..... *Not printed.*

200. Return to an address of the House of Commons, dated 28th March, 1906, showing: 1. What proprietary rights, or rights of licensing, or control or other rights, if any, are vested in the government of Canada or the crown, in the right of Canada in respect to (*a*) sea fisheries; (*b*) inland fisheries in each province. 2. What such rights are vested in each provincial government or the crown in the right of each provincial government, in respect of the matter aforesaid. 3. What rights, powers or jurisdiction to lease or otherwise regulate or control, manage or interfere with sea or inland fisheries, are exercised by the federal government or any department thereof. 4. What such rights, powers or jurisdiction, if any, are exercised by any provincial government or department thereof. 5. What jurisdiction to legislate is possessed or exercised by, (*a*) the parliament of Canada; (*b*) any provincial legislature with respect to: (*c*) sea fisheries, or (*d*) inland fisheries in regard to: (*e*) proprietary rights; (*f*) licensing; (*g*) other regulations; (*h*) control or management. 6. Whether any differences or disputes between any provincial government and the federal government now exist with respect to any of the matters above mentioned; and, if so, a statement of the exact nature and form of such disputes or differences. Presented 10th April, 1907.—*Mr. Borden (Carleton)*....*Not printed.*

201. Copy of amendment to the Postal Convention of January, 1888, between Canada and the United States. Presented 11th April, 1907, by Hon. R. Lemieux..... .....*Not printed.*

202. Return to an order of the House of Commons, dated 18th February, 1907, for a copy of all correspondence, telegrams, reports, and all other information in the possession of the government, or any member or official thereof, in reference to winter communication, and the construction of a tunnel between Prince Edward Island and the mainland of Canada. Presented 12th April, 1907.—*Mr. Martin (Queen's)*..... ...*Not printed.*

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202*a*. Supplementary return to 202. Presented 17th April, 1907.....*Not printed.*

203. Return to an order of the House of Commons, dated 30th January, 1907, showing what wrecks have been reported to the Department of Marine and Fisheries of Canada, which have occurred on the Great Lakes, that is, Lakes Huron and Superior, since the first day of May, 1882; showing what loss of life occurred as a consequence of each wreck, the reported or ascertained cause of the wreck, showing in each case whether there was an investigation into the cause of the wreck, the tonnage and approximate value of each vessel and cargo lost. Presented 12th April, 1907.—*Mr. Boyce.*
Not printed.

204. Return to an order of the House of Commons, dated 3rd December, 1906, for a copy of all correspondence between the postmaster general's department and any person or persons, relating to the forbidding the use of the mails to the newspaper known as *Lowrey's Claim*, and copies of the articles complained of. Presented 15th April, 1907.—*Mr. Galliher*..... *Not printed.*

205. Return to an order of the House of Commons, dated 29th November, 1906, showing the names, places of residence, places or ports where shipped, and dates when shipped, of the officers and crews of the steamers *Minto*, *Stanley* and *Princess*; and also of the dredges *W. S. Fielding*, *St. Lawrence* and *George MacKenzie*. Presented 12th April, 1907.—*Mr. McLean (Queen's)*.. .....*Not printed.*

205*a*. Return to an address of the Senate dated 27th February, 1907, asking for a statement showing: 1. How many men are now or have been employed on the government steamer *Montcalm*, giving the name of each, the date of his employment, the nature of his duties, the amount of his remuneration, and stating in each case whether the employment has been permanent or temporary. 2. What service or services has the said steamer been engaged in, since her construction. If there have been different services the statement to show definitely the time devoted to each service. 3. At what places in the St. Lawrence or elsewhere has the said steamer operated in ice-breaking, and to what extent has such operation resulted in opening passages for ordinary shipping. 4. What has been the total cost of maintenance of said steamer, including wages, fuel, repairs, board of crew, and other expenses, from the time she commenced service (the date to be stated) up to the 25th instant. 5. And showing the tonnage, horse-power, and original cost of said steamer. Presented 17th April, 1907.—*Hon. Mr. Ferguson*..... .....*Not printed.*

206. Return to an order of the House of Commons, dated 17th December, 1906, for a copy of all correspondence between the Winnipeg Board of Trade and any other body or individual and the government or any department thereof, relating to the restriction of fishing on Lake Winnipeg. Presented 12th April, 1907.—*Mr. Roche (Marquette)*..... .....*Not printed.*

207. Return to an order of the House of Commons, dated 17th December, 1906, for: 1. A copy of all leases and agreements between the government, represented by the Deparment of Marine and Fisheries, and (*a*) the Athabasca Fish Company (J. K. McKenzie, Selkirk, Manitoba), or their assigns, Messrs. Butterfield & Dee; (*b*) A. McNee, Windsor, Ontario; (*c*) the British American Fish Corporation of Montreal and Selkirk (F. H. Markey). 2. A copy of all reports, correspondence or documents, relating to or touching upon the application for securing of, transfer of, or enjoyment of any privileges under said leases. 3. A statement of all rentals, bonuses, or payments to the government in respect of such leases to date. 4. All information in the possession of or procurable by the government with reference to (*a*) the number of tugs, boats and men employed; (*b*) the quantity and value of nets used; (*c*) the number and value of fish taken; (*d*) the quantity of fish exported under each of said leases during the last period of twelve months, for which such figures are available. Presented 12th April, 1907.—*Mr. Ames*.. .....*Not printed.*

208. Return to an order of the House of Commons, dated 9th January, 1907, showing, in respect of all contracts since 1st January, 1904, between the government and the Gallena Oil Company, of Toronto, for supplies to any of the railways of the government: 1. The tenders upon which contracts were based, and all tenders made by other parties for such contracts. 2. All correspondence and communications of the department and officers thereof, with the several tenderers or contractors, relating to such contracts, or tenders or supplies; also all correspondence and communications between such officers, relating to such tenders, contracts or supplies. 3. All advertisements, notices, statements, accounts, papers and vouchers, relating to such contracts or supplies, or payments thereof. Presented 15th April, 1907.—*Mr. Ames*..... ..... *Not printed.*

209. Return to an order of the House of Commons, dated 9th January, 1907, for a copy of all reports, instructions, plans, agreements or documents, of every description, in the possession of the government, concerning, relating to, or touching upon the location, the erection, or the equipment of new

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locomotive and car shops at Moncton, or the purchase of new machinery for the same. Presented 15th April, 1907.—*Mr. Ames*..... *Not printed.*

210. Return to an order of the House of Commons, dated 11th of March, 1907, showing the total amount of money in banks, to the credit of the government, at the end of each month during the year 1906, and the name of each bank. Presented 15th April, 1907.—*Mr. Armstrong*.....*Not printed.*

211. Return to an order of the House of Commons, dated 20th February, 1907, showing all the mineral, coal and other lands, water-powers, and other franchises in the vicinity of Grand Falls, on the Hamilton River, and also in the District of Mackenzie; and also in the Territory of Ungava, that have been applied for, leased, granted, disposed of, or otherwise dealt with, since the year 1896; together with the names and addresses of the applicants, lessees and purchasers, the prices paid, the quantity of land alienated, and the conditions, if any, attached to each of the grants or dispositions. Presented 17th April, 1907.—*Mr. Boyce*.....*Not printed.*

212. Return to an order of the House of Commons, dated 11th March, 1907, for a copy of all papers, reports and correspondence, in connection with the Doukhobor colonies in Saskatchewan, from October 1st, 1906, to date. Presented 17th April, 1907.—*Mr. Cash*..... *Not printed.*

213. Return to an address of the House of Commons, dated 8th April, 1907, for a copy of all memorials, petitions, resolutions, correspondence or documents of any description in the possession of the government, relating to or referring to the recent appointment of a senator to represent the district of Rougemont. Presented 17th April, 1907.—*Mr. Ames*.....*Not printed.*

214. Return to an order of the House of Commons, dated 11th February, 1907, showing: 1. What works of a public nature have been undertaken in the counties of Compton, Richmond and Sherbrooke, respectively, by any department of this government since 1896 to date. 2. All sums of money, apart from the usual expenditure in connection with the maintenance of postal and customs department, that have been expended in these counties, respectively, since that date. 3. For what purposes these sums were expended, and to whom paid. Presented 19th April, 1907.—*Mr. Worthington.* *Not printed.*

215. Return to an address of the House of Commons, dated 18th December, 1906, for a copy of all orders in council, advertisements for tenders, tenders, specifications of every kind, plans, drawings, reports, letters, telegrams, correspondence, contracts, agreements and other documents and papers of every kind, touching or relating to the construction of a post office in the city of Winnipeg, since the year 1900. Presented 19th April, 1907.—*Mr. Borden (Carleton)*.....*Not printed.*

216. Return to an order of the House of Commons, dated 11th February, 1907, for a copy of all letters, reports and other papers connected with the building of a wharf at North East Harbour, Shelburne County, N.S. Presented 19th April, 1907.—*Mr. Perley*.....*Not printed.*

217. Return (in part) to an order of the House of Commons, dated 6th February, 1907, for a copy of all letters, accounts, vouchers, cheques, correspondence and documents relating to any amount paid to Mr. R. T. McIlreith, barrister, of Halifax, for legal services, by the government of Canada, during each of the fiscal years ending, respectively, 30th day of June, 1902, 1903, 1904, 1905 and 1906. Also relating to all amounts similarly paid to any legal agent or representative of the government at Halifax during each of the fiscal years ending, respectively, 30th June, 1891, 1892, 1893, 1894, 1895, 1896 and 1897. Presented 19th April, 1907.—*Messrs. Crocket* and *Johnston*.....*Not printed.*

218. Return to an order of the House of Commons, dated 10th December, 1906, for a copy of all papers and correspondence, relating to the adoption and the application of section 9 of the Act of 1885, amending the Consolidated Revenue Act of 1883, now subsection 4 of section 148, of chapter 34 of the Revised Statutes of Canada; this Act treating of two-year maturing spirits in bond. Presented 19th April, 1907.—*Mr. Robitaille*.....*Not printed.*

219. Report of Mr. Augustus Power, K.C., Commissioner appointed to report on the matter of Louise F. Wiley *vs.* Fred. T. Congdon. Presented 19th April, 1907, by Hon. F. Oliver.....*Not printed.*

220. Extracts from a report of the Committee of the Privy Council, approved by the Governor General on 26th May, 1906, and 5th July, 1906, respecting certain ordinances passed by the council of the Yukon Territory. Presented 20th April, 1907, by Hon. F. Oliver..... *Not printed.*

221. Return to an order of the House of Commons, dated 4th March, 1907, showing: All coal lands leased, sold, or otherwise disposed of, from the 1st of January, 1906, to date, giving the area disposed of, the party to whom, the consideration therefor, the assignments made, if any, the date thereof, and the name of the assignee in each case. Presented 24th April, 1907.—*Mr. Lake.* *Not printed.*

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222. Census of Statistics. Bulletin 1, Wage-earners by Occupations. Presented 25th April, 1907, by Hon. S. A. Fisher . ..... *Not printed.*

223. Return to an address of the Senate dated 7th December, 1906, for copies of all correspondence respecting a site or sites for a public building in the town of Glace Bay, N.S., between any member of the government and all other parties ; the area of the sites, the price of each, the date of the purchase, the date of each payment, the name of the seller of each site, the report or reports of the government engineer, showing lots recommended and those not recommended by him, and all notes or memoranda referring to said sites. Presented 15th April, 1907.—*Hon. Mr. McDonald (Cape Breton)*..... ... *Not printed.*

224. Return to an order of the House of Commons, dated 28th November, 1906, for a copy of all correspondence and other papers since the year 1896, between the city of Toronto, the Harbour Commissioners of Toronto, or any other persons, and the Dominion government, relating to, (*a*) the dredging or deepening of Toronto Harbour and the approaches thereto at the eastern and western gaps, or the shoals outside of said entrances ; (*b*) the building of breakwaters, piers or other works for or in connection with such entrances at the eastern and western gaps to said harbour. Presented 27th April, 1907.—*Mr. Macdonnell*..... ..... *Not printed.*

225. Supplementary return to 166. Presented (Senate) 28th February, 1907..... .....*Not printed.*

226. Return to an address of the Senate dated 20th March, 1907, asking for all correspondence between the government of Canada or any department thereof, and the government of Prince Edward Island, in 1901 or 1902, respecting the per capita allowance payable to that province, as provided for in the British North America Act, and how the said allowance should be computed on the population of the province, as ascertained by the census of 1901. Presented 5th April, 1907.—*Hon. Mr. Ferguson*.....*Not printed.*

227. Return to an order of the Senate, dated 6th February, 1907, asking for a statement indicating in so many columns : 1. The names, christian names, age and nationality, of all persons who have been appointed to any position in the customs house at Quebec, since the 1st of July, 1906. 2. The names of the persons who were replaced by those new appointments, specifying at the same time whether the persons so replaced were replaced by reason of their death, their retirement, or their dismissal, and by whom they have been replaced. 3. The names of the persons who recommended each of these new appointments. Presented 27th April, 1907.—*Hon. Mr. Landry*.....*Not printed.*

CANADA

REPORT OF THE MINISTER OF PUBLIC WORKS

REPORTS

OF THE

INTERNATIONAL WATERWAYS COMMISSION

1906

Submitted in Accordance with the Provisions of Chapter 36, Section 37, of the Revised Statutes of Canada.

VOL. II

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OTTAWA
PRINTED BY S. E. DAWSON, PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1907

[No. 19*a*—1907.]

To His Excellency the Right Honourable Sir Albert Henry George, Earl Grey, G.C.M.G., &c., &c., Governor General of Canada.

My Lord,

I have the honour to lay before Your Excellency the Second Volume of the Report of the Department of Public Works of Canada, for the Fiscal Year ended June 30, 1906, containing the compiled reports of the International Waterways Commission to January 4, 1907.

I have the honour to be,

My Lord,

Your Excellency's most obedient servant,

SYDNEY FISHER,

Acting Minister of Public Works.

Ottawa, January 28, 1907.

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2. Second interim report of the Canadian section.
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FIRST PROGRESS REPORT

OF THE

CANADIAN MEMBERS

OF THE

INTERNATIONAL WATERWAYS COMMISSION,

1905

INTERNATIONAL WATERWAYS COMMISSION,
OFFICE OF CANADIAN SECTION,
OTTAWA, December 24, 1905.

SIR,—The Canadian section of the International Waterways Commission has the honour to submit the following progress report.

The River and Harbour Act, passed by the United States Congress and approved June 13, 1902, contained the following provision, viz.:—

'The President of the United States is hereby requested to invite the government of Great Britain to join in the formation of an international commission, to be composed of three members from the United States and three who shall represent the interests of the Dominion of Canada, whose duty it shall be to investigate and report upon the conditions and uses of the waters adjacent to the boundary lines between the United States and Canada, including all of the waters of the lakes and rivers whose natural outlet is by the River Saint Lawrence to the Atlantic ocean, also upon the maintenance and regulation of suitable levels, and also upon the effect upon the shores of these waters and the structures thereon, and upon the interests of navigation by reason of the diversion of these waters from or change in their natural flow; and, further, to report upon the necessary measures to regulate such diversion, and to make such recommendations for improvements and regulations as shall best subserve the interests of navigation in said waters. The said Commissioners shall report upon the advisability of locating a dam at the outlet of Lake Erie, with a view to determining whether such dam will benefit navigation, and if such structure is deemed advisable, shall make recommendations to their respective governments looking to an agreement or treaty which shall provide for the construction of the same, and they shall make an estimate of the probable cost thereof. The President, in selecting the three members of said commission who shall represent the United States, is authorized to appoint one officer of the Corps of Engineers of the United States Army, one civil engineer well versed in the hydraulics of the Great Lakes, and one lawyer of experience in questions of international and riparian law, and said commission shall be authorized to employ such persons as it may deem needful in the performance of the duties hereby imposed; and for the purpose of paying the expenses and salaries of said commission, the Secretary of War is authorized to expend from the amounts heretofore appropriated for the Saint Marys river at the falls the sum of twenty thousand dollars, or so much thereof as may be necessary to pay that portion of the expenses of said commission chargeable to the United States.'

The invitation authorized by this section was duly communicated to the government of Great Britain by Honourable Jos. H. Choate, then American Ambassador in London, by a letter dated July 15, 1902 (copy appended, marked 'A').

On December 2, 1902, the invitation was transmitted by the Colonial Office in London to Lord Minto by a despatch dated December 2, 1902 (copy appended, marked 'B'), and by a subsequent letter dated December 3, 1902 (copy appended, marked 'C').

The Canadian government accepted the invitation of the United States government under the recommendation of the Honourable the Minister of the Interior (copy appended, marked 'D').

On June 6, 1903, the Canadian government was informed by the Secretary of State for the Colonies that His Majesty's government had accepted the suggestion of the Canadian ministers in regard to the appointment of the Canadian Commissioners (copy of Mr. Chamberlain's letter appended, marked 'E').

The American members of the commission were appointed October 2, 1903. They were Colonel O. H. Ernst, Corps of Engineers. United States Army; Mr. George Clinton, attorney-at-law, of Buffalo, N.Y.; and Professor Gardner S. Williams, of Ithaca, N.Y.

The first appointed on the Canadian section was Dr. W. F. King, Dominion Chief Astronomer, of Ottawa, on December 3, 1903 (copy of order in council appended, marked 'F'). The two other Commissioners, Mr. James Pitt Mabee, K.C., of Toronto, and Mr. Louis Coste, C.E., of Ottawa, were appointed on January 7, 1905 (copy of order in council appended, marked 'G'). On February 20, 1905, Mr. Thomas Côté, of the city of Montreal, was appointed secretary of the Canadian section of the commission. He acted as secretary of the full commission up to the appointment by the United States government of Mr. L. C. Sabin, as secretary of the American section, on August 1, 1905. On May 20, 1905, Mr. James P. Mabee was appointed president of the Canadian section of the commission (copy of order in council appended, marked 'I').

The Canadian section held its first meetings in Ottawa, Ont., on March 6 and 7, 1905. The scope of the investigations to be undertaken was defined in a letter addressed to each Commissioner by the Honourable the Secretary of State for Canada, dated January 16, 1905 (copy appended, marked 'J'), from which the following is an extract:—

'Among the subjects that may come up for consideration before this commission are:

'1. The proposed diversion southward by the Minnesota Canal and Power Company, of Duluth, of certain waters in the state of Minnesota that now flow north into the Rainy river and the Lake of the Woods.

'2. The diversion about a mile and a half east of the town of Sault Ste. Marie of part of the waters of the St. Marys river into the Hay channel entirely through American territory. The River St. Marys now forms part of the boundary between the United States and Canada, and the waters of the river are clearly international. The Canadian vessels of necessity are using the Hay channel, but no treaty has been made concerning their right.

'3. Inquiry into the effect of the levels of Lakes Huron and Erie by the construction of the Chicago Drainage Canal.

'4. The building of a dam and other obstructions on the St. John river flowing through the state of Maine into New Brunswick, contrary to the express stipulation of the Ashburton treaty.'

The American section held its first meeting in Washington, D.C., on May 10, 1905, and organized by the election of Colonel Ernst as chairman. The scope of the investigations to be undertaken was defined in a letter from the Department of State, dated April 15, 1905 (copy appended, marked 'K'), from which the following is an extract:—

'The wording of the law will be seen by reference to the inclosed copy. The department's opinion is that the words "including all of the waters of the lakes and rivers whose natural outlet is by the River St. Lawrence to the Atlantic ocean" are intended as a limitation on what precedes them, and that the investigation and report should cover only such waters, omitting the lower St. Lawrence itself, as well as all other waters not discharging naturally through it.

'The broader interpretation given to the Act by the Canadian authorities should be rejected, if for no other reason, on account of the smallness of the appropriation for the support of the American section. Congress could hardly have intended to provide, with a sum of $20,000, for the expenses incident to an investigation extending to the Pacific coast, and possibly embracing the Alaskan boundary as well.'

Previous to the first meeting of the American section, it was learned that the United States government had placed upon the Act of Congress, authorizing the appointment of the commission, a construction limiting considerably the scope of the investigations to be undertaken.

By a despatch dated February 3, 1905 (copy appended, marked 'L'), the Canadian government, through diplomatic channels, made representations to Washington in regard to the erection of further piers in the St. John river. On February 24 the United States Secretary of State informed the Canadian government, through His Majesty's Ambassador in Washington, Sir H. M. Durand (copy of Sir H. M. Durand's despatch and copy of Mr. John Hay's letter appended, marked 'M' and 'N,' respectively), that the commission was debarred from investigating the case of the St. John river and making a report thereon.

On March 25, 1905, the Canadian government made further representations to the United States government (copy of order in council appended, marked 'O'), from which the following is an extract:—

'The minister further observes that throughout the correspondence which has taken place prior to the appointment of the Canadian section of the commission, the terms used have always been identical to those of the Act above referred to (the River and Harbour Act approved June 13, 1902), and that it has always been understood that the investigation would bear upon the conditions and uses of the waters adjacent to the boundary line between Canada and the United States, the other waters belonging to the lakes and rivers whose natural outlet is by the River St. Lawrence to the Atlantic ocean being stated to be also included therein, but the general scope of the commission being especially intended to apply to all waters adjacent to the boundary line between Canada and the United States.

'The minister, therefore, is of the opinion that in the despatch under his consideration an unintentional misapprehension has existed as regards the terms of the Act of Congress, and that it is fit and proper that the work of the commission be not restricted to narrower limits than those indicated by the said Act.

'The minister, therefore, recommends that the necessary representations be made in order that the investigation to be carried on by the said commission, and the report to be based thereon shall extend to all the waters adjacent to the boundary line between Canada and the United States, and, therefore, include such portions of the St. John river as will come within the limit assigned by the Act of Congress to the work of the commission.'

In the meantime, the American section at its meeting, held on May 10, had decided to invite the Canadian members to join in the first full meeting of the commission in Washington, D.C., to be held May 25, and an invitation was issued accordingly by the Department of State at the request of the Secretary of War. On May 25 the full commission held its first meeting in Washington and organized by the election of Colonel Ernst as chairman of that meeting, it being agreed that at meetings of the full commission held on American territory, the chairman of the American section should preside, and at meetings held on Canadian territory, the chairman of the Canadian

section should preside. The Canadian members paid a visit of courtesy to President Roosevelt, where the scope of the investigations was informally discussed. The full commission also proceeded in a body to call upon the Secretary of State.

The commission remained in session during the 25th and the following day, discussing the organization, permanent places of meeting, and scope of their duties. It was decided that for the present the offices of the Canadian section should be established in Toronto, and those of the American section in Buffalo, and that full meetings should be held in one or the other city, as should be found most convenient. Subsequently, though, the Canadian section decided to establish its permanent quarters in the city of Ottawa, not having been able to find in Toronto, at any reasonable price, suitable offices.

The American section having presented the instructions under which they were acting, quoted above, the president of the Canadian section, Mr. J. P. Mabee, presented the following memorandum :—

'The Canadian members of the International Waterways Commission had understood the scope of the commission to be wider than the American members regard it, and that misunderstanding may be avoided, desire briefly to state the position they have understood matters to be in.

'The invitation of His Majesty's government, through the American Ambassador in London, was "for the appointment of an international commission, to be composed of three members from the United States and three who shall represent the Dominion of Canada, whose duty it shall be to investigate in general the waters adjacent to the boundary line between the United States and Canada, the effect upon the shores produced by changes in the water levels, and the erection and location of a dam at the outlet of Lake Erie."

'In due course by a report of the Committee of the Privy Council of Canada, approved by the Governor General of Canada, it was resolved "that His Majesty's government accept the invitation to co-operate in the formation of the commission," this report, after further reciting that as the subjects to be dealt with pertained to "the regulations of the waters adjacent to the international boundary," the matter in so far as Canada was concerned should be under the Department of the Interior and the Department of Public Works.

Some regrettable but unavoidable delay in completing the Canadian section of the commission arose by the long-continued illness of the Honourable the Minister of Public Works for Canada.

In the despatch to the government of Great Britain, naming the American Commissioners, the invitation to His Majesty's government is again recited as being one to form an "international commission to investigate and report upon the conditions and uses of the waters adjacent to the boundary lines between the United States and Canada."

'After the appointment of the Canadian Commissioners, the Prime Minister of Canada, Sir Wilfrid Laurier, in communicating the matter to the Canadian House of Commons in January last, dealt with the subject-matter of the commission as covering all waters adjacent to the boundaries of the two countries, and in the course of his speech made the following statements: "In sections of the country where the boundary is not water, but land, there are streams and large rivers which have their sources in one country and which flow into another. Complaint has been made by the United States that Canadians have constructed some works upon rivers which have their sources in Canada and which flow into the United States, and that these works affect the flow of the waters in their country. We also have made complaints to the United States that Americans have constructed upon some rivers, the St. John river, for instance, works which affect the flow of the waters in our country. It is, therefore, to the mutual interest and advantage of both countries to have this question properly investigated with the view of having concurrent legislation, if such should be found necessary. From olden times it has been a principle of Roman law, which has been

adopted by most civilized nations, that the riparian owner of any stream has the right to use the water of that stream for his own benefit, provided he does not impair the flow of the water beyond the boundary of his property. This is a principle of law which dominates in almost every country; but it is not possible to have this principle followed and carried out when the works are in one country and the boundary of the property is in another country. For these reasons we have thought it advisable to respond to the invitation of the United States to have this question investigated. We have agreed to a commission, to be composed of six members, three to represent the government of the United States and three to represent the government of Canada."

'If the inquiries of the commission are to be limited to the waters of the Great Lakes only, it would seem that the government of Canada has been under a misapprehension as to the desires and intentions of the government of the United States, and we regard it as our duty to report to our government the limitations expected to be placed upon the scope of the commission, and we respectfully suggest that further action should be delayed until we may be advised of the views of the government of Canada upon the premises.'

This was concurred in by the two other Commissioners, Dr. W. F. King and Mr. Louis Coste.

The chairman of the American section stated that he was informed that the British government had communicated with the American government, through diplomatic channels, requesting that a broader interpretation be given to the Act of Congress providing for the commission, and that the American government then had the matter under consideration, but that no decision could be taken before the return to Washington of the United States Secretary of War, at the time absent in the state of Ohio. It was then decided that further proceedings be deferred until further instructions be received from the two governments. It was agreed that the decision of the American government should be communicated to the chairman of the Canadian section as soon as received, and that if it be favourable to the Canadian interpretation of the law, or if it be unfavourable and be accepted by the Canadian government, then a meeting of the commission should be called on Canadian territory by the chairman of the Canadian section at as early a date as practicable. The result of this meeting was communicated to His Majesty's Ambassador at Washington by the secretary of the Canadian section, and Sir H. M. Durand and Mr. H. O'Beirne, the British charge d'affaires, had interviews with Secretary of War Taft and Acting Secretary of State F. B. Loomis, urging the contention of the Canadian government as set forth in the order in council of March 25, 1905, above quoted and appended, marked 'O.'

The United States government persisted in its interpretation of the Act of Congress, and His Majesty's Ambassador in Washington was so informed by the Acting Secretary of State, F. B. Loomis, in a letter dated May 31, 1905 (copy appended, marked 'P').

On June 2, the Acting Minister of Public Works, Honourable W. S. Fielding, was informed by the secretary of the Canadian section of what had happened in Washington (copy of the memorandum appended, marked 'Q').

On June 5, 1905, the following instructions were given to the Canadian section by the Right Honourable Sir Wilfrid Laurier:—

PRIME MINISTER'S OFFICE, CANADA,

'OTTAWA, June 5, 1905.

'DEAR SIR,—With reference to the objection raised by the American Commissioners to consider any other waters than the waters of the lakes and rivers whose natural outlet is by the River St. Lawrence to the Atlantic ocean, it would be of no use to persist in our contention, and the government, therefore, are of opinion that the Commissioners had better proceed even in this limited way.

'At the same time, the Canadian Commissioners would do well to call the atten-

tion of the commission to the condition of things which exists on the River St. John, and the necessity of prompt joint action thereon.

'Yours very sincerely,

WILFRID LAURIER.

'Thomas Côté, Esq.,
'Secretary, Canadian Section,
'International Waterways Commission,
'Ottawa.'

In the meantime, the decision of the United States government had been communicated to the president of the Canadian section by a letter dated June 2, 1905 (copy appended, marked 'R'). The chairman of the Canadian section communicated to the chairman of the American section the decision of the Canadian government, authorizing the Canadian members to proceed with the work of the commission within the field prescribed to the American members (see letter copy appended, marked 'S').

The Canadian section then proceeded to complete its organization. Through the courtesy of the Honourable the Minister of Public Works, temporary quarters in the Seybold building, in Ottawa, were assigned to its use, and later on, excellent quarters were procured in the Corry building. The American section, on the other hand, proceeded also to complete its organization, establishing its quarters in the Federal building in Buffalo. Mr. L. C. Sabin, the secretary of that section, took charge of the office on September 11, 1905.

The full commission held its second meeting at Toronto, June 14 and 15, 1905. It was learned then that Professor Williams had tendered his resignation as member of the commission, and had been replaced by Mr. George Y. Wisner, C.E., of Detroit, appointed June 8, 1905. Among the questions brought to the attention of the commission at this meeting were the following, viz.:—

'A. The uses of the waters at Sault Ste. Marie for power purposes, and the regulations necessary to insure an equitable division of the waters between the two countries and the protection of the navigation interests.

'B. The uses of the waters of the Niagara river for power purposes, and the regulations necessary to insure an equitable division of the waters between the two countries and the protection of Niagara falls as a scenic spectacle.

'C. The alleged differences in the marine regulations of the two countries with respect to signal lights, and the advisability of adopting uniform signals for both countries.

'D. The advisability of building controlling works at the outlet of Lake Erie, including the effect upon the levels of the lakes and upon their shores, and upon the River St. Lawrence.

'E. The diversion southward by the Minnesota Canal and Power Company, of Duluth, of certain waters in the state of Minnesota that now flow north into the Rainy river and the Lake of the Woods.

'F. The effect of the Chicago Drainage Canal upon the levels of Lakes Michigan, Huron, Erie and Ontario, and upon the River St. Lawrence.

'G. Delimiting the international boundary on the international waterways and delineating the same on modern charts.

'H. The suppression or abatement of illegal fishing on the Great Lakes.

'I. The location and construction of common channels.

'J. Regulations to govern navigation in narrow channels.

'K. Protection of shores from damage due to deepening of channels and increased speed.

'L. The transmission of electric energy generated in Canada, to the United States, and vice versa.'

The questions more specially dealt with at the meetings of the commission, on June 14 and 15, in Toronto, were the construction of regulating works at the outlet of Lake Erie, and their probable effect on Lake Ontario and on the River St. Lawrence;

the uses of the waters of Niagara river for power purposes, and the preservation of the falls; and the proposed works of the Minnesota Canal and Power Company, which were referred to the committee on jurisdiction, composed of the attorneys of the two sections, and also to the engineering committee, composed of Messrs. Gorge Y. Wisner and Louis Coste.

In view of permitting the commission to make its existence known to the persons most interested in the international waterways, so as to receive suggestions from them, and to visit in person some or all of the principal localities concerned, it was decided to give public hearings where such hearings were desired by the local business interests.

On July 7, the commission in a body paid a visit of courtesy to the Canadian government, at Ottawa, and were the recipients of many delicate attentions from the authorities. Between July 9 and 13, the commission passed over the St. Lawrence river and the Canadian canals from Quebec to Kingston, using the government steamer *Frontenac,* kindly placed at their disposal by the Honourable the Minister of Marine and Fisheries. Public hearings were held at Montreal July 11, at Kingston July 13, at Niagara Falls September 14, at Toronto September 15, at Hamilton September 16, and at Buffalo November 10. At the first hearing in Montreal, strong objections were presented by the commercial and shipping interests against the proposed construction of controlling works at the outlet of Lake Erie, in fear that such works would be detrimental to the navigation of the St. Lawrence river, and more especially to the St. Lawrence ship channel from Montreal to Quebec. It was then emphatically stated by the American members of the commission that no plan had yet been prepared for the proposed works, and if said works were to cause injury to the River St. Lawrence, the proposition would be entirely and absolutely rejected.

The same expression of opinion was given at the public hearings held in Kingston, Toronto, Hamilton and Niagara Falls.

During the month of August a majority of the members of the commission visited the Detroit river, the St. Clair river, Lakes St. Clair and Huron; St. Marys river, Sault Ste. Marie; Lake Superior; Port Arthur, Fort William and their surroundings; Duluth, Minneapolis, St. Paul, Chicago and Detroit. The report of the sub-committee who made this investigating trip is appended, marked 'Z.'

Meetings of the full commission were also held at Buffalo on September 11, 12 and 13, October 27 and 28, and November 10 and 11. To enable all interested persons to appear before the commission, or to address it, it was arranged that public notice of all meetings would be given as long in advance as possible through the press of the principal cities on both sides of the Great Lakes and the St. Lawrence river.

SAULT STE. MARIE.

Of all the questions brought to the attention of the commission the most pressing one for consideration was that relating to the uses of water at the Sault Ste. Marie. The situation there, in brief, as described in the progress report of the American section of the commission to the United States Secretary of War is this:—

'The volume of water flowing out of Lake Superior is, at normal low water—elevation 601—about 64,000 cubic feet per second. Lower stages and a lower discharge have sometimes occurred. On either side of the rapids is a navigation canal, constructed by the United States and Canadian governments, respectively.

'The traffic through these canals has reached enormous proportions and is increasing. It is larger this year than ever before, and will greatly exceed 40,000,000 tons for the year. The quantity of water consumed in the operation is about 1,200 cubic feet per second. The quantity required in the future will be greater. Not less than 4,000 cubic feet should be unconditionally reserved for canal uses, and in granting power privileges, the respective governments should not forfeit the right to increase the amount indefinitely. It may be remarked in passing that raft navigation over the

rapids has so greatly diminished, and is now so small in amount, that the quantities of water above mentioned will suffice to provide for it. This leaves about 60,000 cubic feet which may be temporarily used for power purposes.

'On the Canadian side the Lake Superior Power Company has a power canal in operation, which has a capacity of about 9,000, and is using about 7,000 cubic feet per second. This company has designed an additional canal, not yet constructed, which will have a capacity of about 23,000 cubic feet per second. On the American side the Michigan Lake Superior Power Company has in operation a power canal, which has a capacity of about 31,000, and is using about 3,500 cubic feet per second. This canal takes the water from the St. Marys river above the rapids, conducts it through the city of Sault Ste. Marie, and empties it about a mile below the rapids. On the American side also the Chandler-Dunbar Company, owning a portion of the shore line adjoining the rapids, have in operation power works using about 1,400 cubic feet per second. This company is engaged in altering and improving its works in the bed of the stream, under revocable permits from the department.

'Under permits thus far granted, the consumption of water will be increased to about 3,000 cubic feet per second, but in March, 1902, the company applied for a permit to build a dike downstream from the fourth pier, counting from the American side of the International bridge in a direction nearly parallel with the shore, to connect with a power house extending out an equal distance into the stream. A rival company, the St. Marys Power Company, applied in March, 1903, for permission to construct a power canal by means of two parallel dikes extending downstream and a short distance upstream, from the third and fifth piers of the bridge, with corresponding power-house. Neither of these latter requests were granted, but they show what the intentions of the companies are, if they be permitted to carry them out. Evidently there is not enough water to carry out all of these schemes. An understanding must be reached by which there shall be an equitable division of the surplus water between the two sides of the boundary. The division between rival companies, fortunately for this commission, may be left to the courts of law.'

The figures above quoted for the Chandler-Dunbar Power Company represent 700 cubic feet per second being actually used, and 700 cubic feet per second being wasted.

The application to the War Department of the United States from the American companies for further privileges, and from the Lake Superior Power Company to the Canadian government for additional authority, led the commission at its session of October 28 to pass the following resolution, of which copies were sent to the Secretary of War of the United States and the Minister of Public Works for Canada, viz.:—

'Resolved, that in the opinion of this commission, no further rights or privileges should be granted or conferred regarding the uses or diversions of the water flowing out of Lake Superior, by either the government of the United States or Canada, until all data and information are in the hands of the commission that may be necessary to enable it to make suggestions for regulating the excess of these waters, or that, if such rights or privileges be granted, they be subject to any regulation that may be adopted by both governments.'

This resolution was transmitted to the Lieutenant-Governor of Ontario by the Secretary of State for Canada, upon a report of the Privy Council (copy appended, marked 'T').

The use of water in St. Marys river for power purposes must be so regulated as not to affect injuriously the level of Lake Superior. The level must never be allowed to fall so low as to injure navigation, and it must never be raised so high as to submerge the shores.

The Act of Congress, approved on June 13, 1902, authorized the Michigan Lake Superior Company to divert water from St. Marys river, above the rapids, with certain conditions, which are described as follows in the Act, viz.:—

'Subject to the express precedent conditions hereinafter mentioned, the Michigan Lake Superior Power Company, of Sault Ste. Marie, Michigan, its successors and as-

signs, after first obtaining consent of the Secretary of War and the Chief of Engineers and their approval of the said canal and remedial works proposed, is hereby authorized to divert water from the Saint Marys river into its water-power canal now being constructed at Sault Ste. Marie, Michigan, for water-power purposes while and so long as such works and diversion of water from said river shall not injuriously affect navigation therein, nor impair or diminish the water levels or any natural increase thereof either in Lake Superior or in the United States ship canal and locks or the navigable channels, locks or ship canals connected therewith, whether natural or artificial, now existing or which may hereafter be established or created by the United States for navigation purposes. And conditioned further, that said company shall establish, maintain and operate suitable and sufficient remedial and controlling works in the rapids of said river, to the approval of the Secretary of War, and the Chief of Engineers; and the said company shall maintain and operate said canal and works in accordance with any rules and regulations that may hereafter be recommended by any international commission and that shall become operative. Whenever, in the judgment of the Secretary of War, the operation of said canal and remedial and controlling works, or either of them, either in themselves or in conjunction with any other canal or canals in the United States or Canada which now or hereafter may exist, is injuriously affecting water levels or the navigation of Lake Superior, the River Saint Marys or other channels, locks or ship canals connected therewith as hereinbefore provided, he shall impose upon said company such rules and regulations for the operation of said canal and remedial works, as may, in his opinion, be necessary to prevent such injury. It shall become his duty, and he shall have the authority to enter upon the property of said company and to close said canal in wl ole or in part to the extent necessary to maintain water levels and to require said company, at its own expense, to remove, add to or modify said works or any part thereof to the extent necessary to maintain water levels. Neither the Secretary of War nor the Chief of Engineers or any officer or other person acting under direction of them or either of them, shall be in any way liable by reason of anything done in the execution of this provision.

'All remedies herein provided, however, shall be cumulative, and shall be without prejudice to any other remedies, either of the United States or of individuals, for failure of said company to maintain said levels for navigation purposes as herein provided.

'Nothing herein contained shall be held to affect any existing riparian or other rights of any person or corporation, or the existing remedies therefor, or any action at law or equity now pending. The right is hereby expressly reserved to congress to alter, amend or repeal the provisions contained in this paragraph.'

The United States War Department entered into an agreement with the Michigan Lake Superior Power Company (copy of which is appended, marked 'U'), and imposed upon the company certain rules and regulations to govern the maintenance of the level of Lake Superior. In the legislation above quoted and in the agreement referred to, the principle was recognized that the use of the water of St. Marys river for power purposes was not granted in any fixed quantity nor for any fixed length of time. It was further recognized that the Secretary of War could enter upon the property and close the canal of the company, in whole or in part, at any time to the extent necessary to maintain the level of St. Marys river above the rapids. The Act further stated that the use of the water of St. Marys river should finally be regulated by an international commission. The rules and regulations imposed upon the Michigan Lake Superior Power Company by the Secretary of War on December 2, 1902, are still in force and will probably be used by the International Waterways Commission as a foundation in framing the regulations to be ultimately recommended to the government of Canada and to the government of the United States. The fundamental principles on which these rules and regulations are based are:—

1. Levels must be maintained.
2. Navigation must be protected.

3. The public must reserve the right to use any portion or all of the natural flow in the future.

A public hearing, at which the parties interested in the condition of affairs at Sault Ste. Marie were given an opportunity to be heard, was held in Buffalo on November 10. The Lake Carriers' Association appeared before the commission and made a strong plea in favour of reserving the land north of the Poe lock for the construction of an additional ship canal and locks.

The commission, at its session of November 11, practically adopted certain rules and regulations to govern the use of the water at St. Marys river and the maintenance of the level of that river above the rapids, and it is hoped that said rules and regulations can be forwarded to the United States Secretary of War, and to the Minister of Public Works of Canada, for approval at an early date. The enforcement of these rules and regulations calls for executive action from time to time, and in this regard the America section of the commission, in its progress report to the Secretary of War, suggested that said executive action be vested in an international commission. Here follows the suggestion of the American section:—

'The enforcement of these rules and regulations calls for the executive action from time to time of an international commission. The enforcement of rules to be established hereafter at other places or upon other subjects will probably likewise require joint executive action. It is not clear from the language of the law creating this commission that congress intended to provide for a permanent international board. It is desirable that the status of the present commission as a permanent executive board be defined, or a new board created.'

The questions brought to the attention of the commission enumerated above cover a wide range of subjects. Some of them clearly come under the jurisdiction of the commission as constituted and as limited in its scope by the United States government. Some do not, if the opinion of the United States Attorney General is to prevail, come under the jurisdiction of the commission, whilst about others there is room for doubt. The American section, in the progress report made to the United States War Department (copy appended, marked 'A 1'), has suggested that the jurisdiction of the commission be more clearly defined.

The United States Secretary of War, in his annual report to President Roosevelt, dated December 9, 1905, has approved the suggestions of the American section in this regard. Here is what he states at pages 51 and 52 of said report:—

'The full commission has held numerous meetings and public hearings, in both the United States and Canada, and has collected a large amount of data bearing upon the various questions which have been brought to its attention. A progress report, showing the work that has been accomplished, is attached hereto marked Appendix F, and attention is invited to this report for a full and detailed statement of the labours of the commission.

'It has been hampered in its work by a lack of clear understanding as to its permanency and as to the eventual scope of its duties. For example, in making regulations for the uses of the surplus waters at the Sault Ste. Marie for power purposes, it seems necessary to provide for joint continuous supervision. The enforcement of rules to be established hereafter at other places or upon other subjects will probably likewise require joint executive action. It is not clear from the language of the law creating the commission that Congress intended to provide for a permanent international board. It is desirable that the status of the present commission as a permanent executive board be defined or a new board created.

'The questions which have been brought to the notice of the commission by various persons or interests thus far cover a wide range of subjects. Some of these questions clearly come under the jurisdiction of the commission as constituted, while some clearly do not, and about others there is room for doubt. The Canadian members of the commission are ready and anxious to consider all of these questions and to extend the jurisdiction of the commission to all international waters between the

Atlantic and the Pacific oceans. It is desirable that the wishes of Congress in this matter be more defined.'

Since the commission completed its organization, it has made good progress in the collection of data bearing upon some of the questions brought before them, particularly upon those relating to the uses of the waters of the Niagara river for power purposes; the regulation of the level of Lake Erie by works near its outlet, and the proposed works of the Minnesota Canal and Power Company.

NIAGARA FALLS.

With reference to the uses of the waters at Niagara Falls, although the commission was not ready to report, it thought proper to pass, at its session of October 28, the following resolution, of which copies were sent to the Secretary of War of the United States and to the Minister of Public Works of Canada, viz.—

'Resolved, that this commission recommend to the government of the United States and Canada that such steps, as they may regard as necessary, be taken to prevent any corporate rights and franchises being granted or renewed by either federal, states or provincial authority for the uses of the waters of the Niagara river for power or other purposes until this commission is able to collect information necessary to enable it to report fully upon the "condition and uses" of those waters to the respective governments of the United States and Canada.'

This resolution was transmitted by the Secretary of State for Canada to His Honour the Lieutenant-Governor of Ontario, and by the United States Secretary of War to the Governor of the State of New York.

The Canadian section requested Monseignor J. C. K. Leflamme, the eminent professor of geology at Laval University, Quebec, to make a special report on the geological condition of the bed of the river in the vicinity of the falls. His report is appended, marked 'V.'

The situation at Niagara in brief is this:—

The following quantities of water are required for chartered developments in operation or in course of construction on both sides of the river:—

On the Canadian Side—

The Ontario Power Company	12,000	cubic feet per second.
The Electrical Development Company	10,600	" "
The Canadian Niagara Power Company	9,500	" "
Total	32,100	

On the American Side—

The American Niagara Falls Power Co.	17,200	cubic feet per second.
The Niagara Falls Hydraulic Power and Manufacturing Company	9,200	" "
Total	26,400	

Total on both sides, 58,500 cubic feet per second.

It is estimated that the total flow over the two falls is 222,400 cubic feet per second. There remains to be determined to what extent the use of 58,500 cubic feet per second for power purposes by the present companies, on both sides of the river, will affect the American fall. A competent hydraulic engineer, at the request of Dr. Clarke, the geologist of the State of New York, has calculated that the subtraction of 40,000 cubic feet per second from the Niagara river above Goat island will draw the water down to the rock bottom edge of the American fall, leaving a miserable little film dribbling over the sill; and that the subtraction of 40,000 cubic feet more,

or 80,000 cubic feet per second in all above Goat island, will dry up the American channel completely, while the Canadian channel will still be an object of interest. Does this necessarily mean that the using of more water on the Canadian side, assuming that said water is taken below the crest of the rapids, will also affect the American fall? This is a point to be determined.

According to the Niagara Falls Electrical hand book, the height of the Canadian fall, over which flows about seven-eighths of the entire volume of water, is 159 feet. The height of the American fall is 165 feet, or about six feet greater than that of the Horseshoe fall, the difference in the level being caused by the greater declivity in the bed of the river in the Canadian channel.

The official geologist of the State of New York states that the height of the American fall is by ten feet greater than the Horseshoe fall. Other engineers and experts have put the difference to from twelve to fourteen feet. This point should also be determined.

The slope of the Niagara river towards the Horseshoe fall is such that the level in the vicinity of the intakes of the power plants on the American side is considerably higher than the Horseshoe fall, towards which the water flows down as in a steep recipient. The American fall is barred off on this channel by a reef near the head of Goat island. The form of the Niagara river is such, however, that it spills over the side of the draw leaving to the Horseshoe fall and branches the water which flows over the American fall. It is clear that the drawing of water from the American side must have a greater effect upon the lower end of the American fall than drawing it on the Canadian side, two of the Canadian intakes being below the crest of the rapids. The data are lacking regarding the speed of this descent, hence it is not possible to estimate with any accuracy what are the relative amounts of water which can be drawn from the two sides of the river without affecting the American fall. *En resume,* we have no absolute data to govern us at the present time.

Besides the chartered developments referred to above, there are in existence two charters granted by the New York lgislature to corporations organized to take unlimited water from Niagara river.

The Dominion Parliament has also granted charters to three corporations which are still in force and organized for the purpose of diverting water from the Welland river or from the Niagara river by back flow, and from Grand river and Lake Erie.

None of these companies on either side of the river have actually commenced the construction of their works.

At Chicago, citizens of the United States have built a drainage canal, which, when fully completed, will use 10,000 cubic feet of water per second. This drainage canal will have the effect of lowering Lake Michigan by over six inches and Lake Erie by nearly four inches. It will, beyond a doubt, materially affect the flow of the Niagara river over the falls.

On the Canadian side there is also the Welland canal and the Hamilton Cataract Power Company, who take their water from the Welland canal, using the escarpment at De Cew's falls and representing a total diversion of 2,400 cubic feet per second.

There is also the Niagara Falls Park River Railway Company, who are using 1,500 cubic feet of water per second.

On the American side another diversion of 1,500 cubic feet per second is made by way of the Erie canal.

Therefore the total diversions of water by works in operation or under actual construction on the American side represent 37,900 cubic feet per second, and on the Canadian side the total quantity of water which will be ultimately diverted by works actually in operation or in way of construction represent 36,000 cubic feet per second.

President Roosevelt, in his message to congress on December 5, 1905, stated as follows:—

'In my judgment, the Grand Canyon of the Colorado should be made into a national park. It is greatly to be wished that the state of New York should copy, as regards Niagara, what the state of California has done as regards the Yosemite.

Nothing should be allowed to interfere with the preservation of Niagara falls in all their beauty and majesty. If the state cannot see to this, then it is earnestly to be wished that she should be willing to turn it over to the National government, which should in such case (if possible, in conjunction with the Canadian government) assume the burden and responsibility of preserving unharmed Niagara falls; just as it should gladly assume a similar burden and responsibility for the Yosemite national park, and as it has already assumed them for the Yellowstone national park. Adequate provision should be made by congress for the proper care and supervision of all these national parks.'

Your commission are desirous of obtaining the views of the government as to preserving the scenic beauty of Niagara falls.

No doubt the government of the province of Ontario will be ready to co-operate with the Dominion government in this regard. An agreement will have to be arranged whereby the quantity of water diverted for power or other purposes shall be limited, and there will have to be an arrangement for equitable division of such waters. The demand for use of power for commercial purposes will increase every year, and it will require a very strong stand to prevent the despoiling of this one of nature's greatest wonders.

The Federal government has, in the opinion of this commission, control of the deportation of power to the United States. Unfortunately, a very large portion of the power generated on our side of the river at Niagara will, unless some more effectual restrictions are placed upon its removal, soon be permanently diverted to the building up of American factories and the running of American railways. Within a few years our own railways will be clamoring for this power. Vested rights already interefere with action in this regard, and the more power that is now allowed to be diverted the greater will be the evil and the harder to rectify.

It is quite evident, in the view of the commission, that the jurisdiction to deal with international waters must be vested in the Federal government of each country. Changed conditions and the greatly increased demand for power, owing to electrical developments, have rendered it absolutely essential that there should be one authoritive body controlling the diversion of such waters. The interests of navigation must be paramount, and the Federal government alone must ultimately decide what those interests are. The maintenance of Niagara is a national matter, and should be dealt with on national lines.

The whole question of riparian rights in relation to navigable streams or international waters will most likely have to be adjusted by some treaty arrangement between the two countries, and instructions will have to be given to some commission to report upon some scheme of settlement upon broad lines.

It is desirable to have settled by the highest authority as soon as possible, whether the water in navigable international streams is in any sense the property of the provinces or states bounding on the same, or whether whatever property rights exist in such streams are vested in the Federal government. If it should be held that the provincial and state authorities have proprietary rights in such waters, then your commission are of the opinion that some arrangements should be made with the provinces by which such rights should be acquired, so that the use of the same may be the subject of a reasonable treaty of mutual benefit with our neighbours.

RAINY RIVER.

The proposed works of the Minnesota Canal and Power Company are of vast importance to the Rainy river district. They may be described as follows:—

At the height of land in St. Louis and Lake counties in northern Minnesota, the waters from Birch lake and White Iron lake, and the streams running out thereof, and the immense watershed thereof, run northward and ultimately into Rainy lake, and from there into Rainy river, passing into the Lake of the Woods. The water from this

source forms by computation seven per cent of the water passing out of Rainy lake over Alberton falls at Koochiching. The water system of Rainy river and Lake of the Woods have long been established as a commercial highway. From the Canadian ports of Rat Portage and Fort Francis, two large and well equipped passenger and freight lines ply daily during the season of navigation, forming the means of water communiaction between the Canadian ports of Rat Portage, Rainy River town, Boucherville, Burwick, Emo, Big Forks, Little Forks, Isherwood, Fort Francis, Bears Pass, Seine River and Mine Centre, and forming along a considerable part of such route the only vehicle of passenger and freight communication.

The most important section of the two hundred miles of navigation is the Rainy river, flowing through what is rapidly becoming a thickly populated and prosperous valley for some eighty odd miles, with towns rapidly building up at close intervals on its banks dependent almost wholly on the river route for their mercantile and manufacturing interests. The fine class of steamboats plying on this water is already in certain portions of the summer hampered by low water on the rapids and shoals of the river, and the proprietors of the regular steamboat lines have been earnestly petitioning for such improvement being made on the river as would remove such disability, a disability that compels the withdrawal for considerable intervals during each summer of some of the large and deeper draught steamboats. In view of the fact that navigation is already suffering for lack of adequate water in portions of Rainy river and in portions of Rainy lake, the population of that district has learned with surprise and alarm that active steps had been taken by the Minnesota Canal and Power Company, of Duluth, Minn., to obtain the authorization of the Federal government of the United States, through the Commissioner of the General Land Office at Washington, to construct a dam or dams and a canal to divert all the waters of the Birch lake and White Iron lake watershed, hereinbefore referred to, into the Embarrass river, and by it into Lake Superior at Duluth, thus diverting from this long established international waterway of Rainy lake and Rainy river a large proportion of its tributary waters. It is claimed that, if permission be given by the Federal government of the United States to the project of the Minnesota Canal and Power Company, a disastrous injustice will be done to Canadian and American established navigation companies that are now using the water highway of Rainy lake and Rainy river, and to the manufacturing towns along the river, both on the Canadian and United States sides.

It is claimed that the waters of Birch lake and Birch river and White Iron lake help to form the chain of lakes and rivers along the boundary which are referred to in the Webster-Ashburton treaty, and which, by the terms of the treaty, are a public highway, free to the citizens and subjects of both countries. The scheme of the Minnesota Canal and Power Company is to take 600 cubic feet per second out of a total estimated average flow of 985 cubic feet per second. The minimum flow is estimated at 210 cubic feet per second. The quantity to be taken, 600 cubic feet per second, would be more than the natural flow during the greater part of the year.

The corporation of the town of Fort Francis, on March 17. 1904, sent to the Minister of Marine and Fisheries of Canada, a protest against the proposed undertaking of the Minnesota Canal and Power Company. This protest has been sent by the Canadian government to the United States government, through the British Embassy at Washington.

On January 25, 1905, the Acting Secretary of State, F. B. Loomis, informed the Right Honourable Sir H. M. Durand, the British Ambassador in Washington (copy of his letter appended, marked 'W'), that the United States Secretary of the Interior had directed the Commissioner of the General Land Office, before whom the application of the Minnesota Canal and Power Company was pending, to suspend further action in the case until advised as to the results of the inquiry which was to be made by the International Water Boundary Commission. Later on the Attorney General of the United States, called upon to give his opinion on the construction to be put upon the Act of Congress authorizing the appointment of the commission, stated in reference to the case of the St. John river, New Brunswick, that the jurisdiction of the

commission was limited to the system of the Great Lakes and the St. Lawrence river. The members of the American section have since then felt reluctant in dealing with the question of the proposed works of the Minnesota Canal and Power Company, and they are awaiting further instructions from Congress in regard to this matter.

Since the Minnesota Canal and Power Company made this application to the United States Secretary of the Interior, the Rainy River Development Company and the Ontario and Minnesota Power Company have constructed extensive works at Koochiching falls for the purpose of improving navigation in Rainy lake and Rainy river, with the expectation of using the power which will be developed for manufacturing purposes. The Ontario and Minnesota Power Company, under a contract with the Ontario government, has acquired the Canadian end of the Koochiching falls, and a number of acres of shore land adjacent. They have obtained, during the last session of parliament, an Act of Incorporation, being chapter 139 and entitled, 'An Act respecting the Ontario and Minnesota Power Company.'

By an order in council, approved by the Governor General on September 19, 1905, the Minister of Public Works and the government of Canada have approved the plans of the Ontario and Minnesota Power Company (copy of the approval appended, marked 'X'). The engineers of the Department of Public Works stated that in so far as the construction of the dam at Koochiching falls is concerned, it will not in any way interfere with navigation above or below the falls at Fort Francis, but will, in fact, be an improvement. The dangerous rapids, two miles above Fort Francis, will be flooded, thereby improving materially the navigation. The freshet waters stored in Rainy lake could be let out during the season of low water, thereby also considerably improving navigation of the river between Fort Francis and the Lake of the Woods. The only objection that could be raised to the proposed elevation of the dam is provided for by a proposed revetment wall to be constructed by the company, and also by a clause in the Act of Incorporation of the company, which makes all damages to lands caused by their works a charge to be borne by them.

The proposed works of the Minnesota Canal and Power Company would interfere with the works authorized by His Excellency the Governor-in-Council. It is expected that soon after the present session of congress, the International Waterways Commission will take up this question.

On November 21, 1905, the chairman of the Canadian section, Mr. J. P. Mabee, having been appointed one of the justices of the High Court of Ontario, resigned, and Mr. George C. Gibbons, K.C., of London, Ont., was appointed in his place chairman of the Canadian section (copy of order in council appended, marked 'Y'). Since Mr. Gibbons' appointment there have been two meetings of the Canadian section, one in Toronto and one in Ottawa, at which the work of the commission has been fully reviewed and the various matters before the commission discussed.

The Canadian section, in conclusion, desire to express their appreciation of the spirit of fairness shown by the members of the United States section in the discussion of all matters.

(Signed) GEO. C. GIBBONS,
Chairman of Canadian Section.

(Signed) W. F. KING,

(Signed) LOUIS COSTE,
Members of Canadian Section.

(Signed) THOMAS COTE,
Secretary of Canadian Section.

Honourable C. S. HYMAN,
Minister of Public Works,
Ottawa, Ont.

APPENDIX 'A.'

Mr. Choate to the Marquis of Lansdowne.

American Embassy, London, July 15, 1902.

My Lord,—Under instructions from my government, I have the honour to inclose herewith four copies of a print of the Act of Congress, approved June 13, 1902, making appropriations for the improvement of rivers and harbours, and at the same time to draw your Lordship's attention to section 4, page 47, of the same, which provides for the appointment of an international commission, to be composed of three members from the United States and three who shall represent the Dominion of Canada, whose duty it shall be to investigate in general the waters adjacent to the boundary line between the United States and Canada, the effect upon the shores produced by changes in the water levels, and the erection and location of a dam at the outlet of Lake Erie. In bringing the matter to the attention of your Lordship, I am instructed to invite His Majesty's government to take part in the formation of the commission in question, and I should be much obliged if your Lordship would be so good as to cause me to be informed at the earliest moment which may be practicable, whether His Majesty's government would be disposed to accept the invitation of my government in this connection.

I have, etc.,

JOSEPH H. CHOATE.

APPENDIX 'B.'

From Colonial Office to Lord Minto.

London, December 2, 1902.

Section 4 of Act of Congress of United States of America, approved June 13 this year, for improvement of rivers and harbours, provides for appointment of international commission of six members, three from Canada, to investigate generally waters adjacent to international boundary, United States invite His Majesty's government to co-operate in formation of commission. What are views of your ministers? Telegraph reply. Papers were sent to Prime Minister July 30.

(Signed)

Secretary of State for the Colonies.

APPENDIX 'C.'

Secretary of State for the Colonies to the Earl of Minto,

Downing Street, December 3, 1902.

My Lord,—I have the honour to transmit to your Excellency, to be laid before your ministers, the accompanying copy of a note from the American Ambassador at this court, respecting a proposed international commission to investigate the waters adjacent to the boundary line between the United States and Canada.

I shall be glad to receive any observations which your ministers have to offer at an early date.

A copy of this letter was communicated to Sir W. Laurier on July 30 last, but no answer has yet been received from him.

I have, etc.,

(Signed) ONSLAW,

For the Secretary of State.

APPENDIX 'D.'

EXTRACT from a report of the Committee of the Honourable the Privy Council, approved by the Governor General on April 27, 1903.

The Committee of the Privy Council have had under consideration a Colonial Office despatch, dated December 3, 1902, transmitting an abstract of section 4, of Act of Congress of the United States, approved June 13, 1902, which provides for the appointment of an international commission of six members, three representing the interests of Canada, and three from the United States, to investigate and report upon the conditions and uses of the waters adjacent to the boundary lines between the United States and Canada.

The Minister of the Interior, to whom the matter was referred, submits the following recommendations: That His Majesty's government accept the invitation to co-operate in the formation of the commission; and that, as the subjects to be dealt with pertain to the regulations of waters adjacent to the international boundary, thereby affecting harbours and navigation, all surveys and investigations necessary to carry out the intent of the commission be made, as far as Canada is concerned, under the Department of the Interior and the Department of Public Works; and also, that the appointment of the three members of the commission representing the interests of Canada be made on the recommendation of the Minister of the Interior and the Minister of Public Works.

The committee advise that the Governor General be moved to forward a copy of this minute to the Right Honourable the Secretary of State for the Colonies.

All which is respectfully submitted for approval.

(Signed) JOHN J. McGEE,
Clerk of the Privy Council.

APPENDIX 'E.'

DOWNING STREET, June 6, 1903.

MY LORD,—I have the honour to acquaint your Excellency for the information of your ministers, that, in accordance with the terms of your despatch, No. 167, of May 4, the Secretary of State for Foreign Affairs has informed the United States charge d'affaires that His Majesty's government accept the invitation of the United States government to co-operate in the formation of the commission to investigate the waters adjacent to the boundary line between the United States and Canada.

His Majesty's government accept the suggestion of your ministers as to the appointment of the commissioners, and I presume that steps will now be taken to carry their recommendations into effect and to select the three British representatives.

I have, &c.,
(Signed) J. CHAMBERLAIN.

APPENDIX 'F.'

EXTRACT from a report of the Committee of the Honourable the Privy Council, approved by His Excellency the Governor General, on December 3, 1903.

The Committee of the Privy Council have had under consideration a cablegram, dated October 16, 1903, from the Right Honourable the Secretary of State for the Colonies, transmitting the names of the three gentlemen appointed by the President of the United States as members of the proposed International Waterways Commission.

The Minister of the Interior, to whom the said despatch was referred, recommends that Mr. William Frederick King, Chief Astronomer of the Department of the Interior, be appointed as one of the Canadian members of such commission.

The committee advise that the Governor General be moved to so inform the Right Honourable the Secretary of State for the Colonies.

All which is respectfully submitted for approval.

(Signed) JOHN J. McGEE,
Clerk of the Privy Council.

APPENDIX 'G.'

EXTRACT from a report of the Committee of the Honourable the Privy Council, approved by His Excellency the Governor General, January 7, 1905.

The Committee of the Privy Council have had under consideration a despatch, herewith, from the Right Honourable the Secretary of State for the Colonies, numbered 306 and dated October 28, 1904, relating to the proposed International Commission to investigate and report upon the conditions and uses of the waters adjacent to the boundary line between the United States and Canada, and inviting the government of Canada to take the question of the appointment of the additional Canadian representatives into early consideration.

The Minister of the Interior, to whom the said despatch was referred, states that by an Act of Congress of the United States, passed in 1902, provision was made for the appointment of three persons to investigate the conditions and uses of the waters tributary to the River St. Lawrence, these persons to be one officer of the Corps of Engineers of the United States Army, one civil engineer well versed in the hydraulics of the Great Lakes, and one lawyer of experience in questions of international and riparian law.

The Minister also states that provision was further made for an invitation to the government of Great Britain to appoint an equal number of commissioners who should represent the interests of the Dominion of Canada.

The invitation having been extended, the formal assent of the government of Canada was given by minute——— of council, dated April 27, 1904, in which it was provided that the representatives of Canada should be named by the Minister of the Interior and the Minister of Public Works.

The Minister further states, that at a later date the President of the United States named his three Commissioners, and Mr. W. F. King, of the Department of the Interior was appointed by order in council on the recommendation of the Minister of the Interior.

The committee recommend that James Mabee, Esquire, K.C., of Toronto, and Louis Coste, Esquire, engineer, of Ottawa, be appointed commissioners in conjunction with Mr. King on the proposed International Commission.

The committee advise that the Governor General be moved to forward a copy of this minute to the Right Honourable the Secretary of State for the Colonies.

All of which is respectfully submitted for approval.

(Signed) JOHN J. McGEE,
Clerk of the Privy Council.

APPENDIX 'I.'

EXTRACT from a report of the Committee of the Honourable the Privy Council, approved by the Governor General on May 20, 1905.

The Committee of the Privy Council, on the recommendation of the President of the Privy Council, advise that James P. Mabee, Esquire, K.C., of Toronto, be appointed

chairman of the Canadian Commissioners to investigate the conditions and uses of the waters tributary to the River St. Lawrence, adjacent to the boundary lines between the United States and the Dominion.

(Signed) JOHN J. McGEE,
Clerk of the Privy Council.

APPENDIX 'J.'

OTTAWA, January 6, 1905.

SIR,—I have the honour to inform you that by a minute of the Privy Council, dated January 7, 1905, His Excellency the Governor General has been pleased to appoint Messrs. J. P. Mabee, K.C., of Toronto, and Louis Coste, C.E., of Ottawa. additional members of the International Commission to investigate and report upon the conditions and uses of the waters adjacent to the boundary line between the United States and Canada, to which you were appointed on December 3, 1903.

I inclose a copy of the minute of council appointing these gentlemen, and also an extract from the American statutes authorizing the appointment of the United States members of the commission.

Among the subjects that may come up for consideration before this commission are:

1. The proposed diversion southward by the Minnesota Canal and Power Company of Duluth, of certain waters in the State of Minnesota, that now flow north into the Rainy river and the Lake of the Woods.

2. The diversion about a mile and a half east of the town of Sault Ste. Marie of part of the waters of the St. Marys river into the Hay canal entirely through American territory. The river St. Marys now form part of the boundary between the United States and Canada, and the waters of the river are clearly international. The Canadian vessels of necessity are using the Hay canal, but no treaty has been made concerning their right.

3. Enquiry into the effect of the levels of Lakes Huron and Erie by the construction of the Chicago canal.

4. The building of the dam and other obstructions on the St. John river, flowing through the State of Maine into New Brunswick, contrary to the express stipulation of the Ashburton treaty.

The government are of the opinion that the Canadian members of the commission should come together at an early date, and I have so informed Messrs. Mabee and Coste, and asked them to confer with you as to the date of meeting.

It is proposed to appoint Mr. Thomas Côté, journalist, of Montreal, as secretary to the Canadian section of the commission.

I have the honour to be, sir,
Your obedient servant,
(Signed) R. W. SCOTT,
Secretary of State.

W. F. KING, Esq.,
Chief Astronomer,
Department of the Interior, Ottawa.

APPENDIX 'K.'

DEPARTMENT OF STATE,
WASHINGTON, April 15, 1905.

SIR,—Referring to your letter of the 10th ultimo, asking as to the instructions which may be required by the American Commissioners appointed under section 4

of the River and Harbour Act of 1902 (32 Sta. L., 373), especially in regard to a question which you state is likely to arise concerning the scope of the commission's investigation, the Canadian members appearing to be disposed to regard it as taking in all waters adjacent to the boundary line, whether part of the Great lakes or not, I have to state as follows:—

The wording of the law will be seen by reference to the inclosed copy. The Department's opinion is that the words 'including all of the waters of the lakes and rivers whose natural outlet is by the River St. Lawrence to the Atlantic Ocean,' are intended as a limitation on what precedes them, and that the investigation and report should cover only such waters, omitting the lower St. Lawrence itself as well as all other waters not discharging naturally through it.

The broader interpretation given to the Act by the Canadian authorities should be rejected, if for no other reason on account of the smallness of the appropriation for the support of the American section. Congress could hardly have intended to provide with a sum of $20,000 for the expenses incident to an investigation extending to the Pacific coast, and possibly embracing the Alaskan boundary as well.

A portion of the report of the chairman of the River and Harbour Committee, when reporting the bill (copy of Act herewith), treats of section 4, and would appear to limit the scope of the investigation to the Great Lakes system.

When the ground to be covered has been defined, the law itself appears to be sufficiently detailed to serve as instructions to the American Commissioners.

It seems sufficient, therefore, at the present stage to inform you and the other members of the American section of the views held by the Department as to the scope of the investigation and report, and to request the American Commissioners to assemble and organize as soon as possible after the 20th instant, at this capital, and to submit, after discussion, their own recommendations as to further procedure.

I inclose, also, for your information, copies of letters from Colonel Ernst and Professor Williams in regard to the place of meeting of the commission.

Copies of your letter of the 10th ultimo, and of this, the Department's reply, have been addressed to Colonel Ernst and Professor Williams for their guidance.

I am, sir, your obedient servant,

(Signed) F. B. LOOMIS,
Acting Secretary.

GEO. CLINTON, Esq.,
Commissioner of the United States,
International Waterways Commission,
1012 Prudential Building, Buffalo, N.Y.

APPENDIX 'L.'

TO HIS EXCELLENCY THE GOVERNOR GENERAL:

The undersigned has the honour to represent that on May 4, last, he submitted to Your Excellency's predecessor a minute of the Executive Council of New Brunswick, calling attention to the erection by the St. John Lumber Company—a United States incorporation—of certain piers and booms in the St. John river, near the village of Van Buren, in the State of Maine, and advised that the attention of the government of the United States be drawn to the subject, with a view to the removal of the obstruction complained of, the erection of which it was pointed out constitutes a violation of Article III. of what is commonly known as the Ashburton Treaty of 1842; providing that the navigation of the St. John river shall be free and open to both parties and shall in no way be obstructed by either. No answer appears to have been received to this communication.

The undersigned has now the honour to submit to Your Excellency a petition signed by Mr. J. Fraser Gregory, on behalf of certain lumbermen and mill-owners

of St. John in convention, pointing out that not only has no action been taken on the petition of the provincial government of New Brunswick, but a bill is actually before the legislature of the State of Maine having for its object the incorporation of another company with powers to construct further piers in the said river almost immediately below those built by the St. John Lumber Company, which formed the subject of the previous remonstrance. Messrs. Gregory and his associates point out that if the proposed fresh obstructions are allowed to be erected, great damage will ensue to Canadian lumbermen and mill-owners along the St. John river. The undersigned, concurring in this view, recommends that a copy of this memorial be transmitted to His Majesty's Ambassador at Washington, and that Sir Mortimer Durand be again requested to bring the subject to the early attention of the United States authorities with a view not merely to the removal of the obstruction immediately complained of, but also to the posponement of any action on the part of the Maine legislature with respect to legislation in the direction indicated above, until the International Commission which has recently been appointed to consider the whole question, shall have made its report.

All of which is respectfully submitted.

(Signed) R. W. SCOTT,
Secretary of State.

OTTAWA, February 1, 1905.

FROM LORD GREY TO SIR MORTIMER DURAND.

OTTAWA, February 3, 1905.

SIR,—With reference to my predecessor's despatch, No. 38, of May 5, 1904, requesting that representations might be made to the United States government in regard to the erection of certain piers and booms in the St. John river, which was considered by this government to involve a violation of article III. of the Ashburton Treaty of 1842, I have the honour to inclose a copy of a further report from the Secretary of State of Canada, submitting a petition from certain lumbermen and mill-owners of St. John, New Brunswick, in which it is pointed out that so far from action having been taken to remove the obstruction to the navigation of the river of which complaint was made, a bill is now before the Maine legislature to incorporate a company with power to construct other piers which will cause further damage to Canadian interests.

Your Excellency will observe that the minister suggests that the matter again be brought to the attention of the United States authorities, with the view of obtaining the removal of the obstructions complained of, and postponement of action on the bill referred to, until the International Waterways Commission, recently appointed, shall have made its report.

I have, &c.,
(Signed) GREY.

HIS EXCELLENCY THE RIGHT HONOURABLE
SIR MORTIMER DURAND, G.C.M.G., Etc., Etc., Etc.

APPENDIX 'M.'

SIR H. M. DURAND TO LORD GREY.

BRITISH EMBASSY, WASHINGTON, February 27, 1905.

MY LORD,—On receipt of your Excellency's despatch, 3rd, relative to the erection of further piers in the St. John river, I at once addressed a note to the United States government bringing the matter to their notice, and suggested that action be deferred on the bill pending before the Maine legislature, and that obstructions already erected should be removed.

I have now the honour to transmit copy of the note which I have received from the United States Secretary of State in reply.

I have, etc.,

(Signed) H. M. DURAND.

APPENDIX 'N.'

DEPARTMENT OF STATE,
WASHINGTON, February 24, 1905.

EXCELLENCY,—I have conferred with my colleagues of the Departments of War and Justice touching the suggestion made in your note of February 11, at the instance of the Canadian government, that it would appear desirable that until the recently appointed commission on international waterways has submitted its report, action should be postponed upon a bill now before the Maine legislature providing for the incorporation of a company with power to construct piers in the St. John river, additional to those complained of in your prior note of May 9, 1904, and that, meanwhile, the obstructions already erected should be removed.

It is the view of my colleagues that, under the 4th section of the River and Harbours Act of June 13, 1902, the function of the International Waterways Commission, the creation of which was authorized and invited by that Act, do not extend beyond the execution of the purposes therein defined, namely, the investigation of the problems of water level, water supply and navigation in the Great Lakes and tributary streams having their natural outlet by the River St. Lawrence to the Atlantic ocean. The St. John river does not belong to the water system intended to be investigated, and consequently the future report of the International Waterways Commission would have no relation to the complaint now presented. It would remain a separate matter for consideration.

The attention of the Attorney General has again been called to the matter of the existing obstructions in the St. John river.

I have, etc.,

(Signed) JOHN HAY.

APPENDIX 'O.'

EXTRACT from a report of the Committee of the Honourable the Privy Council, approved by the Governor General, on March 25, 1905.

The Committee of the Privy Council have had under consideration a despatch dated February 27, 1905, from His Majesty's Ambassador at Washington, concerning the scope of the International Waterways Commission.

The Minister of Public Works, to whom the question was referred, observes that the United States Secretary of State draws attention to the fact that the Act of Congress authorizing the creation of the commission, does not extend beyond the execution of the purposes therein defined, vix.: 'The investigation of the problems of water level, water supply and navigation on the Great Lakes and tributary streams having their natural outlet by the River St. Lawrence to the Atlantic ocean.'

The minister further observes that the Secretary of State states that as the St. John river does not belong to the water system intended to be investigated, the future report of the International Waterways Commission can have no relation to a complaint made concerning work executed and to be executed on the St. John river, which would, therefore, remain a separate matter for consideration.

The Minister, in view of the above statement, which would go far to restrict the range and scope of the International Waterways Commission, has procured a copy of the Act of Congress above referred to, and submits a verbatim copy of section 4 of

chapter 1079 of the statutes of the United States, passed by the 57th Congress, the section in question being as follows, that is to say:—

'That the President of the United States is hereby requested to invite the government of Great Britain to join in the formation of an International Commission, to be composed of three members from the United States and three who shall represent the interests of the Dominion of Canada, whose duty it shall be to investigate and report upon the conditions and uses of the waters adjacent to the boundary line between Canada and the United States, including all of the waters of lakes and rivers whose natural outlet is by the River St. Lawrence to the Atlantic ocean, also upon the maintenance and regulation of suitable levels; and also upon the effect upon the shores of these waters and the structures thereon, and upon the interests of navigation by reason of the diversion of these waters from or change in their natural flow, and further to report upon the necessary measures regarding such diversion, and to make such recommendation for improvements and regulations as shall best subserve the interests of navigation in said waters.

'And said commissioners shall report upon the advisability of locating a dam at the outlet of Lake Erie with a view to determining whether such dam will benefit navigation, and if such structure is deemed advisable, shall make recommendations to their respective governments looking to an agreement or treaty which shall provide for the construction of the same; and they shall make an estimate of the probable cost thereof.'

The Minister further observes that throughout the correspondence which has taken place, prior to the appointment of the Canadian section of the commission, the terms used have always been identical to those of the Act above referred to, and that it has always been understood that the investigation would bear upon the conditions and uses of the waters adjacent to the boundary line between Canada and the United States, the other waters belonging to the lakes and rivers whose natural outlet is by the River St. Lawrence to the Atlantic ocean, being stated to be also included therein, but the general scope of the commission being especially intended to apply to all waters adjacent to the boundary line between Canada and the United States.

The Minister, therefore, is of the opinion that in the despatch under his consideration an unintentional misapprehension has existed as regards the terms of the Act of Congress, and that it is fit and proper that the work of the commission be not restricted to narrower limits than those indicated by the said Act.

The Minister, therefore, recommends that the necessary representations be made in order that the investigation to be carried on by the said commission, and the report to be based thereon, shall extend to all the waters adjacent to the boundary line between Canada and the United States, and, therefore, include such portions of the St. John river as will come within the limit assigned by the Act of Congress to the work of the commission.

The committee advise that His Excellency be moved to forward a copy of this minute to His Majesty's Ambassador at Washington.

All of which is respectfully submitted for approval,

(Signed. JOHN J. McGEE,
Clerk of the Privy Council.

APPENDIX 'P.'

DEPARTMENT OF STATE,
WASHINGTON, May 31, 1905.

EXCELLENCY,—I have the honour to acknowledge the receipt of Mr. O'Beirne's note of the 22nd instant, by which he informs me that he is instructed by Lord Lansdowne to express the hope that the United States government will see its way,

without necessarily conceding the principle of its contention as to the scope of the Waterways Commission, to agree to the wish of the Canadian government that the commission should deal with the question of the obstruction of the St. John river.

Serious consideration has been given to Mr. O'Beirne's note, and I regret to reply that this government is unable to accede to the Canadian government's wish. As your ambassy has been advised in a former note, this government's construction of the Act of Congress is that the Waterways Commission created thereunder has no jurisdiction over the St. John river; and in the opinion of this government such jurisdiction can be exercised only by authority of Congress. Moreover, as the questions which have arisen regarding the St. John river affect particularly the State of Maine and the province of New Brunswick, such questions should be considered only by a commission on which both of them shall be represented.

I think I can assure Your Excellency that Congress will, in the early part of its next session, provide for a commission, to be joined with one from Canada, to examine fully into the questions in controversy between the business interests of Maine and those of New Brunswick with regard to the St. John river, and this government sees no reason why the whole matter may not be satisfactorily adjusted by such a commission within a short period of time.

I have the honour to be, &c.,

(Signed) F. B. LOOMIS,
Acting Secretary.

The Right Honourable Sir H. M. DURAND, &c.

APPENDIX 'Q.'

INTERNATIONAL WATERWAYS COMMISSION.

(Canadian Section.)

SECRETARY'S OFFICE,
OTTAWA, June 2, 1905.

Hon. W. S. FIELDING,
Minister of Finance,
Acting Minister of Public Works, Ottawa, Ont.

DEAR SIR,—By direction of the Canadian section of the International Waterways Commission, I have the honour to report as follows:—

On May 11 last, the American Commissioners met in Washington and decided to invite the Canadian section to a joint meeting, to be held in Washington on the 25th of the same month.

The commission actually met at the office of Colonel O. H. Ernst on May 25, at 10.30 a.m. There were present: Mr. J. P. Mabee, chairman of the Canadian section; Messrs. W. F. King and Louis Coste, members of the Canadian section, and Mr. Thomas Côté, secretary of the Canadian section; Colonel O. H. Ernst, chairman of the American section; Professor Gardner S. Williams and Mr. George Clinton, members of the American section.

The commission proceeded in a body to call upon the Secretary of State, and after a brief interview with Mr. F. B. Loomis, first assistant and acting secretary, returned to the first place of meeting, and devoted several hours to an informal discussion of the organization, permanent place of meeting, and scope of duties of the commission, but came to no conclusion thereon, and at 1.45 p.m. adjourned to meet the next day at 11 o'clock a.m.

On May 26, the commission met again at the office of Colonel Ernst, at 11 o'clock a.m. There were present all the members of the joint commission and the secretary of the Canadian section. An organization was effected by the election of Colonel

Ernst as chairman of this meeting, it being agreed that at meetings of the full commission held on American territory the chairman of the American section should preside, and at meetings held on Canadian territory, the chairman of the Canadian section should preside.

It was decided that for the present the offices of the Canadian section should be established in Toronto, and those of the American section in Buffalo, and that full meetings should be held in one or the other city from time to time, as should be found most convenient.

The American section presented the instructions under which they are acting, as embodied in the following letter, viz.:—

'Department of State,
'Washington, D.C., April 15, 1905.

'George Clinton, Esq.,
'Commissioner of the United States,
'International Waterways Commission,
'1012 Prudential Building, Buffalo, N.Y.

'Sir,—Referring to your letter of the 10th ultimo, asking as to the instructions which may be required by the American commissioners appointed under section 4 of the River and Harbour Act of 1902 (Statutes-at-large, volume 32, page 375), especially in regard to a question which you state is likely to arise concerning the scope of the commission's investigation, the Canadian members appearing to be disposed to regard it as taking in all waters adjacent to the boundary line, whether part of the Great Lakes or not, I have to state as follows:—

'The wording of the law will be seen by reference to the inclosed copy. The department's opinion is that the words, "including all the waters of the lakes and rivers whose natural outlet is by the River St. Lawrence to the Atlantic ocean," are intended as a limitation of what precedes them, and that the investigation and report should cover only such waters, omitting the lower St. Lawrence itself, as well as all other waters not discharging naturally through it.

'The broader interpretation given to the Act by the Canadian authorities should be rejected, if for no other reason, on account of the smallness of the appropriation for the support of the American section. Congress could hardly have intended to provide, with a sum of $20,000, for the expenses incident to an investigation extending to the Pacific coast, and possibly embracing the Alaskan boundary as well.

'A portion of the report of the chairman of the River and Harbour Committee, when reporting the bill (copy of Act herewith) treats of section 4, and would appear to limit the scope of the investigation to the Great Lakes system.

'When the ground to be covered has been defined, the law itself appears to be sufficiently detailed to serve as instructions to the American commissioners.

'It seems sufficient, therefore, at the present stage, to inform you and the other members of the American section of the views held by the department as to the scope of the investigation and report; and to request the American commissioners to assemble and organize, as soon as possible after the 20th instant, at this capital, and to submit, after discussion, their own recommendations as to further procedure.

'I inclose also, for your information, copies of letters from Colonel Ernst and Professor Williams, in regard to the place of meeting of the commission.

'Copies of your letter of the 10th ultimo and of this, the department's reply, have been addressed to Colonel Ernst and Professor Williams for their guidance.

'I am, sir, your obedient servant,

'(Signed) F. B. LOOMIS,
'*Acting Secretary.*'

The Canadian section then communicated to the American Commissioners the views of the Canadian government, which are embodied in the following extract from

a report of the Committtee of the Honourable the Privy Council, approved by the Governor General on March 25, 1905:—

'The Committee of the Privy Council have had under consideration a despatch, dated February 27, 1905, &c., &c.'

(See order in council, referred to under heading of appendix 'O,' page 26, of this report.)

The Canadian section then presented the following memorandum:—

'The Canadian members of the International Waterways Commission had understood the scope of the commission to be wider, &c., &c.'

(This memorandum will be found at page 6 of this report.)

(Signed) J. P. MABEE,
WASHINGTON, D.C., May 26, 1905. *Chairman Canadian Section.*

The chairman of the American section stated that he was informed that the British government had communicated with the American government through diplomatic channels, requesting that the broader interpretation above described be given to the law of Congress, providing for the commission, that the American government had the matter under consideration, and that a decision could not be expected before the return of Secretary Taft to the city on Monday the 29th, or Tuesday the 30th ultimo.

It was decided that further action be deferred until the decision be given, and until further instructions be received from the two governments. It was further decided that the decision of the American government should be communicated to the chairman of the Canadian section as soon as received, and that if it be favourable to the Canadian interpretation of the law, or if it be unfavourable and be accepted by the Canadian government, then a meeting of the commission shall be called at Ottawa by the chairman of the American section at as early a date as may be convenient to the members.

At 12.30 p.m. the commission took recess until 4 p.m.

The commission reconvened at 4 p.m., and having heard the minutes of preceding meetings read, approved them, and then adjourned *sine die.*

On Monday, May 29, I called at the British Embassy and handed to His Excellency the Right Honourable Sir H. Mortimer Durand, copy of the minutes of the proceedings of the preliminary meetings of the commission. He informed me that he would call on Wednesday, May 31, on Secretary of War Taft and on Acting Secretary of State Loomis, to press again the Canadian interpretation of the Act of Congress, passed in 1902, and authorizing the formation of the commission.

I have received to-day from Mr. O'Beirne, Secretary of the British Embassy and the charge d'affaires in Washington, during the absence of Sir H. Mortimer Durand, the following telegram: 'This government regret they cannot agree with your commission dealing with St. John river. Have wired fully Governor General. (Signed) O'Beirne.'

The Canadian section is now awaiting further instructions from His Excellency the Governor General in council.

All of which is respectfully submitted.

(Signed) THOMAS COTE,
Secretary Canadian Section.

APPENDIX 'R.'

International Waterways Commission,
(American Section)
Office of Chairman, Room 328, Mills Building,
Washington, D.C., June 2, 1905.

Dear Sir,—I have the honour to inform you that our government has found itself unable, after very serious consideration of the question, and after having submitted it to the Attorney General, to accede to the desire of the Canadian government to include the St. John river within the scope of the commission's work, and that I am authorized to communicate this decision to you informally. It has been communicated formally to the British government through diplomatic channels.

I am further authorized to assure you that it is the firm expectation of our government that our Congress will, in the early part of its next session, provide for a commission to work jointly with one from Canada to examine fully into the questions in controversy between the business interests of Maine and New Brunswick, with regard to the St. John river.

Allow me to express the hope that this decision will not prevent the prosecution of the work of the commission within the field prescribed to the American section, as communicated to you at our session held here on the 25th and 26th ultimo, and that I shall have many opportunities for renewing the agreeable acquaintance so auspiciously begun on that occasion.

Yours very respectfully,

(Signed) O. H. ERNST,
Colonel, Corps of Engineers, Chairman American Section.

J. P. Mabee, Esq.,
Chairman Canadian Section,
International Waterways Commission,
Bank of Toronto Building, Toronto, Canada.

APPENDIX 'S.'

International Waterways Commission,
(Canadian Section)
Office of Chairman, Bank of Toronto Building,
Toronto, June 7, 1905.

My Dear Sir,—I have the honour of acknowledging yours of June 2, advising me that the government of the United States, after very serious consideration, has found itself unable to accede to the desire of the Canadian government to include the St. John river within the scope of the commission's work, but at the same time assuring me that it is the firm expectation of your government that Congress will, in the early part of its next session, provide for a commission, to work jointly with one from Canada, to examine fully into the questions in controversy between the business interests of Maine and New Brunswick with regard to the St. John river.

The final position taken by your government has been laid before the government of Canada, and I have the honour of informing you that with full reliance of your assurance relating to the unfortunate differences regarding the uses of the waters of the St. John river, our government has authorized the Canadian Commissioners to proceed with the inquiry within the field prescribed by the interpretation placed upon the Act of Congress by your Attorney General, and at the same time, I am specially charged by the Premier of Canada to draw the attention of your section of the commission to the condition of matters along the St. John river, and to the necessity of prompt joint action thereon.

A meeting of our section has been called for to-morrow, and I shall advise you at once of the date suggested for a joint meeting, pursuant to our arrangement at Washington.

Personally, I am gratified at the conclusion arrived at by our government, and I am sure that my brother Commissioners of the Canadian section will look forward with great pleasure to the future joint meetings of the commission.

Believe me, my dear sir, yours very respectfully,

(Signed) J. P. MABEE,
Chairman of Canadian Section International Waterways Commission.

COLONEL O. H. ERNST,
Chairman American Section,
International Waterways Commission,
Mills Building, Washington, United States of America.

APPENDIX 'T.'

EXTRACT from a report of the Committee of the Honourable the Privy Council, approved by the Governor General, on November 29, 1905.

On a report dated November 17, 1905, from the Minister of Public Works, submitting that at a meeting of the International Waterways Commission in the city of Buffalo, state of New York, on October 28, 1905, the following two resolutions, having reference to the use for manufacturing purposes of the waters of the River St. Mary and of River Niagara, were proposed and adopted:

'RESOLVED:—That this Commission recommends to the Governments of the United States and Canada that such steps as they may regard as necessary be taken to prevent any corporate right or franchises being granted or renewed by either Federal, State or Provincial authority, for the use of the waters of the Niagara River for power or other purposes until this Commission is able to collect the information necessary to enable it to report fully upon the 'conditions and uses' of those waters to the respective governments of the United States and Canada.'

(Signed) J. P. MABEE,
Chairman, Canadian Section.
(Signed) O. H. ERNST,
Chairman, American Section.

'RESOLVED:—That in the opinion of this Commission no further rights or franchises should be granted or conferred regarding the uses or diversions of the water flowing out of Lake Superior, by either the government of the United States or Canada, until all data and information are in the hands of the Commission that may be necessary to enable it to make suggestions for regulating the excess of these waters, or that, if such privileges be granted, they be subject to any regulations that may be adopted by both governments.'

(Signed) J. P. MABEE,
Chairman, Canadian Section.
(Signed) O. H. ERNST,
Chairman, American Section.

The Minister recommends—with a view to ratifying the above regulations—that the Government of Ontario be communicated with, laying before that government contents of said resolutions, with a request that such means be adopted as may be thought proper to ensure their being carried out.

The Committee submit the same for approval.

(Signed) JOHN J. McGEE,
Clerk of the Privy Council.

APPENDIX 'U.'

Whereas, by the River and Harbour Act, approved June 13, 1902, it is provided (32 Stats. L., 361) that, subject to the conditions therein mentioned:

'The Michigan Lake Superior Power Company, of Sault Ste. Marie, Michigan, its successors and assigns, after first obtaining consent of the Secretary of War and the Chief of Engineers and their approval of the said canal and remedial works proposed, is hereby authorized to divert water from St. Marys river into its water-power canal, now being constructed at Sault Ste. Marie, Michigan, for water-power purposes, while and so long as such works and diversion of water from said river shall not injuriously affect navigation therein, nor impair or diminish the water levels or any natural increase thereof, either in Lake Superior, or in the United States ship canal and locks, or the naviagable channels, locks, or ship canals connected therewith, whether natural or artificial, now existing or which may hereafter be established or created by the United States for navigation purposes.'

And Whereas the said Michigan Lake Superior Power Company has submitted for the approval of the Secretary of War and the Chief of Engineers plans of its water-power canal and remedial works for the diversion of the water from the St. Marys river, authorized by said Act, and has applied for consent of the Secretary of War and Chief of Engineers to such diversions;

And Whereas, the Chief of Engineers has aproved the said plans and has given his consent to such diversion, subject to the acceptance by said company of the conditions hereinafter specified:

Now, Therefore, this is to certify that the Secretary of War hereby approves the said plans, which are hereto attached, and hereby gives his consent to the diversion of water from the St. Marys river, as authorized by said Act, subject to the acceptance by said company of the following conditions:

1. That the regulation works, including escape valves at power, controlling works, and remedial works, shall be operated under the inspection of the engineer officer in charge of the St. Marys Falls Canal, who shall have access to them at all times.

2. That when the mean level of Lake Superior at the canal for any calendar month falls below 601.5 feet above mean tide at New York, according to the levels of the United States Lake Survey Office, the flow through the canal shall be reduced, the amount of reduction increasing as the monthly mean level falls until it reaches 601:0, when all flow shall be stopped until the monthly mean level again exceeds 601:0, all without claim against the United States or against any officer thereof.

3. That in addition to the requirements of conditions 2 (supra), all flow shall likewise be stopped, without claim against the United States, or against any officer thereof, should the monthly mean level of the lake remain below 601·5 for a period of six consecutive calendar months, and shall not be resumed until the monthly mean level shall exceed 601·5.

4. That when the monthly mean level rises above 603·0, the flow through the canal and the remedial works shall be increased to their maximum capacity, and shall so continue until the monthly mean level shall be less than 603·0, without claim against the United States or against any officer thereof.

5. That should the monthly mean level of the lake remain above 603:0 for a period of six consecutive calendar months, said company shall alter its work at its own expense as soon as practicable, so as to allow more flow.

6. That the United States shall have the right to assume entire control of the flow of water through the canal and remedial works in cases of accidents, or of emergencies temporarily affecting navigation through the United States ship canal.

7. That should cross currents detrimental to navigation be created by the intake or by the outflow of the canal, said Company shall construct such booms, training walls, or other works as may be necessary to remedy the evil.

8. That said Company, in its arrangement and construction of remedial works shall leave a suitable channel and water flow for the passage of logs over and through St. Marys falls.

9. That these limitations are in addition to the special limitations of the Act of June 13, 1902, regarding riparian or other rights of any person or corporation and the remedies therefor.

10. That the elevations above mean tide at New York, above specified, are those established and in use at this date by the office of the survey of the northern and northwestern lakes, commonly known as the Lake Survey Office, at Detroit, Michigan.

11. Finally, the object and aim of the foregoing paragraph being to hold the waters of the lake and river under the absolute control of the United States in the interest of navigation, it is expressly understood that said company shall not be entitled to damages should the government at any time or for any cause exercise its right to control and suspend the flow of water through the power canal, in the interest of navigation.

Witness my hand this 12th day December, 1902.

(Signed) ELIHU ROOT,
Secretary of War.

This instrument is also executed by the Michigan Lake Superior Power Company, by Francis H. Clergue, its president, thereunto lawfully authorized, this 9th day December, 1902, in testimony of the acceptance by said company of the foregoing conditions.

THE MICHIGAN LAKE SUPERIOR POWER COMPANY.
(Signed) By Francis H. Clergue, President

Attest:
H. Von Schon,
F. T. Trempe.

(Seal)

APPENDIX 'V.'

(*Translated from the original.*)

Thomas Côté, Esq.,
Secretary International Waterways Commission,
Ottawa, Ont.

Sir,—At your request I went to Niagara in the latter half of October last. The object was, as you had written me a few days before, to determine whether the cataract will continue to recede at a rate equal to that observed since 1842.

There is no need to point out that a problem, to which geologists have already given years of work without having attained an absolutely certain result, could hardly be solved by a few days' study. However, my visit to Niagara was very useful to me, inasmuch as I could thereby verify *de visu* the facts already published, to say nothing of the personal observations which I was enabled to make.

The result of my studies upon this question is briefly summarized in the report which I now have the honour to submit. You will observe that of the authors whom I quote in my paper, not one is Canadian. I thought this would be preferable, with regard to our American friends, since it closes the door to the slightest suspicion of partiality.

I have the honour to be, sir, your obedient servant.

(Signed) J. C. K. LAFLAMME.

Quebec, November 9, 1905.

SESSIONAL PAPER No. 19

NOTES ON THE RETROCESSION OF NIAGARA FALLS.

Summary.

1. Uncertainties of the geological chronicle as relating to the hollowing out of the gorge and to the retrocession on the falls of Niagara.
2. Character of the retrocession of the cataract.
3. Irregular course of the erosion at Niagara, in the past and in the future.
4. Limit of the rapid retrocession.
5. Secular oscillations of the basin of the Great Lakes and their influence on Niagara river.
6. Variations of the volume of water in the river, both on the Canadian and on the American side.
7. Influence of the electric works on the cataract.
8. Conclusion.

1. I will not undertake to give either the geological history of the Niagara river or that of the falls. The history of the past has no part in the programme assigned to me. Moreover, to estitmate what Niagara has been, through bygone geological ages, is an extremely complex problem. For more than half a century many great geologists, Canadian and American, have thoroughly studied the subject. In spite of their labours, and notwithstanding all the hypotheses, born of their investigations, or perhaps owing to these very hypotheses it must be confessed that the question is far from being solved. If, in the main, the history of the falls is now fairly well known, the details are yet ungrasped. And in the present instance the details are of more importance than the general facts definitely recognized by science.

This disagreement among geologists becomes more evident when it is remembered that some of the best known assign 5,000 years as the time taken by the cotaract to cut out its bed from the heights of Queenston to its present site, while others, of equal scientific standing, assert that no less than 50,000 years were required for hollowing out Niagara's gorge. Between these extreme figures are to be found the estimates of many others, which suffices to show that upon this point of the history of Niagara, agreement is far from absolute, and to prove also how uncertain and how susceptible to different interpretations are the data upon which we have to work.

I might perhaps say as much in regard to the specific question of the retrocession of the fall. The fact is known to almost everyone. But it is only since 1842 that measurements were made and that definite data were obtained.

Before that time, from Father Hennepin, in 1673, to the triangulation by James Hall, in 1842, it could be said that the Horseshoe had retreated, but to what extent no one could definitely ascertain.

As it is this retrocession of the falls which I have had more particularly to study, it may be well to detail the actual process as agreed on by all geologists.

2. On the whole length of the crest of the cataract, water flows over a thick bed of dolomitic limestone.

The upper layers, much broken and furrowed, overlie other parallel strata, more compact and more resisting. The whole is what is called the Lockport or Niagara limestone. It is over the first series of these strata that the water of the river descends from the head of the rapids to the cataract.

Under this limestone, and parallel to it, lies a mass of foliated compact argillite, that constitutes almost all of the lower portion of the bank. These schistose masses are demolished both by the rebound from below and the direct attack of the falling waters from above. They crumble and disappear, so that sooner or later the limestone layers above become overhanging, when deprived of the support which upheld them, then give way under the weight of the rushing water, and in falling cause the crest of the cataract to reced. Later, the same process is repeated, bringing about each time retrocession of the crest.

It is not then, as might be thought, the friction, although enormous, of the water, which wears away the layers of the bottom and causes them little by little to disap-

pear; it is, rather, the destruction of the support of these beds which brings about their fall in large or small quantities. The process is one of demolition rather than one of erosion or dissolution.

3. Consequently, the extent of the retrocession, its direction and its limit, all depend on data rather difficult to elucidate in detail, should there be reached a greater hardness in the argillitic lower beds; or again, should the limestone strata become more compact and more resisting, the retrocession will become slower. Reverse modifications in the physical condition of the beds would hasten it.

Differences on the resistance of the geological strata have equally to be taken into account when it is a question of forecasting the direction in which the retrocession will take place. Such direction must be largely influenced by the fact that through the vast expanse of the Horseshoe some parts will naturally give way more easily than others under the disintegrating action of the waters. Finally, it must not be forgotten that if the mass of waters be greater at one point than another, the limestone will break away sooner there than elsewhere, and the retrocession at such a point will be to the extent accelerated.

This will explain why the retreating of the Canadian falls is three or four times more rapid than that of the American; why it takes place, so to speak, by spells, now quickly, now slowly*; why again it is more pronounced at certain points of the Horseshoe than at others; and why, lastly, it happens that it is not always most marked where there is most water.

It is therefore evident that the yearly rate of retreat of the cataract is continually varying, but further inquiry may make it questionable whether the figures given are strictly accurate. It must be remembered that the exact determination of the crest line of the Horseshoe, on which depends the estimation of the extent of the retrocession, can only be determined by a very minute triangulation based upon a certain number of fixed points on the shores and other points equally stable selected along the crest itself. Now, nothing is more unstable than a sheet of faling water. It may happen, and doubtless it does sometimes happen, that some of the points selected as guiding marks on the crest of the falls are not recognizable at the different stations or are confounded with nearby marks.

This explains certain anomalies to be found in the profiles of the Horseshoe as traced in 1842, 1875, 1886 and 1890, and reproduced by Mr. Spencer in 1894.† Unquestionably the strangest of them is to find that the profile of the Horseshoe is farther back in 1886 than in 1890, for at this particular point the fall is shown to have come forward during these years instead of receding. The same may be said about the profile of 1875 and 1886; they overlap each other on the west side of the Horseshoe.

Therefore, the problem to be solved, when measuring the retreat, is a very difficult one in its ultimate details, and only approximate figures can be reached, with little importance attaching to the fractions of a foot which the computation may give.

As a general conclusion, it may be said, without fear of contradiction, that we are not sufficiently acquainted with the intimate physical structure of the banks of limestone and shale that occasion the cataract to recede, to state positively either what is the regular rate of retreat, or that it will continue indefinitely, at the same rate, in the direction it has followed during, say, the last fifty years. At the present it seems to follow the outline of Goat island; whether it will always do so, is unknown to us.

In the opinion of Mr. J. W. Spencer, whom I had the pleasure of meeting at Niagara, and whose geological studies of this locality, carried on for many years with an untiring devotion, are of great value, the erosion will continue for a time toward Goat island, after which the western side will be affected.

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*Mr. Grabau, in his Geology and Palæticlogy of Niagara Falls and vicinity, p. 83, gives the following figures as representing the mean retrocession of the Horseshoe as evinced by measurements made by Hall in 1842; by the engineers of the Lake Survey in 1875; by R. S. Woodward in 1886, and by M. S. Kibbe, in 1890, Niagara retreated 2:01 feet per year from 1842 to 1875, 1:86 feet from 1875 to 1886, and 5:01 feet from 1886 to 1890. Last summer Mr. Spencer proceeded, with greatest care, to make new determinations of the profile of the cataract. They will, probably, when the computations are finished, give us another figure.

†'Duration of Niagara Falls.' The American Journal of Science, Dec., 1894, p. 461.

A peculiar phenomenon occurs at the falls; powerful jets of water from time to time spout upwards a hundred feet above the crest of the Horseshoe; they appear to be geyser-like explosions, brought about by a sudden very powerful vertical action. Their localization is quite definite. They are only seen where the two sides of the Horseshoe are closest together. It must be remembered that the regularity of the curve that gave the name of Horseshoe to the Canadian fall is now only to be seen at its extremities. The central part more nearly resembles a fairly sharp 'V.' It is at the apex of this 'V' that the vertical spurts take place.

Many think them to be caused by air compressed behind the curtain of the cataract, which it rends from time to time in forcing an outlet. If this be so why should this compressed air not escape at each end of the curtain by following the profile of the escarpment? There is no lack of space, since one can go behind the falling mass of water. Besides, when visiting the Canadian tunnel, which opens behind the enormous fall, there is no sensation of compressed air. Some would certainly exist there, although in a lesser degree than at the centre. Moreover, why should these explosions take place upwards and not perpendicularly to the falling sheet of water? I rather incline to see in them a hydraulic ram effect. The huge mass of rushing water meets jutting rocks, which it strikes with energy sufficient to shoot a part of this water to a higher point than the starting level.

But whatever may be the explanation of these mighty spouts they are an evidence of extreme mechanical action, a powerful process of erosion taking place at the apex of the 'V,' and so long as the crest of the Horseshoe keeps its present profile it must be at that point that the greatest amount of erosion will take place.

The caving in of large areas on the sides of the Horseshoe may modify this state of things and prevent the point of the 'V' from eating away more ground than the rest.

4. Now, to resume the question of the falls, from which these digressions have carried us.

I have attempted, above, to show the uncertainty of the computations hitherto made regarding the rate of retreat. Moreover, even assuming these figures to be accurate, there is doubt if this rate will be maintained invariably and ever constant at the mean of the last fifty years.

As the falls retreat, the thickness of the hard limestone beds increases. It will have reached its maximum when the point of the Horseshoe has arrived at the line of shoals close to the south end of Goat Island. On the other hand, the friable argillitic underpart of the profile of the escarpment decreases in thickness as the falls draw nearer Lake Erie, owing to the general dip of the layers toward the south. Dr. J. H. Clarke, New York State geologist, believes that when the cataract has reached the line of shoals above mentioned, the escarpement will be wholly composed of the limestone strata, the dip of the argillites southward having reached the lower level of the river bed. By that time the fall will have grown some fifty feet higher than it now is, and the retreat, being thereafter exclusively the result of the wear of the limestone, will become slower.

5. A factor that must seriously affect this study of Niagara is the weight of the volume of water precipitated into the chasm. If, as before stated, the volume of water varies, one of the weightiest causes of retreat must also vary in the same proportion, and all the deductions drawn from the present data will suffer should there be any difference in the flow of the Niagara river. Now, geologists tell us that the part of the surface of the American continent that includes the Great Lakes is subject to slow oscillations, which result in a general upheaval on the northeast or a sinking on the southwest. This secular crustal movement, slow, but continuous, will begin by retarding the flow of the water running northeasterly. Then a time will come when Lakes Superior, Michigan, Huron and Erie, instead of draining through Lake Ontario, will send their waters toward the Mississippi through the southern extremity of Lake Michigan.

I may borrow the following figures from Mr. Grabau:* In 2,000 years the Illinois and Niagara rivers will share equally the waters of the Great Lakes. In 2,500 years the Niagara will have but an intermittent flow. In 3,000 years Niagara will be no more, and all the immense hydrographic basin of the Great Lakes, save that of Lake Ontario, will drain into the Mississippi. Therefore, until then, the discharge of Niagara must continually decrease and the eating away of the falls will vary accordingly. We will see later on what is to be thought of these figures.

But before going further, are these crustal movements really so regular and constant as they are said to be? They are found in Scandinavia, in Greenland, and on a number of other coasts. It is also known, however, that they do not occur with regularity, nor do they always work in the same way.

According to Dr. Clarke,† the shore at Percé on the Gaspé coast, which was going down fifty years ago is now rising. Who is not acquainted with the classic example of the famous temple of Serapis, in Italy, which, after having been for a long time buried under water, owing to the settling of the soil, emerged later on, and attained several centuries ago a level that has not varied since?

The crustal movements have every variety of period; some may be secular, some may last a few years only, and to refer specially to the movement which may be affecting Niagara river, nobody yet knows its period. It may continue, it may come to an end, or it may reverse itself. It is, therefore, impossible upon such uncertain data to make very positive assertions, the reliability of which could never go beyond that of the premises. Such was the position lately taken by Dr. Clarke.

Consequently, the possible oscillations of the basin of the Great Lakes are hardly worth taking into consideration in the study of such a problem as we have before us, unless we be willing to extend conjectures to a future so remote as to deprive them of any interest.

6. It may be asked whether the recession of the falls will lessen the quantity of water which now flows along the Canadian shore in the upper rapids. On that score I do not believe that we have much to fear. No matter what direction the retreat may take, we shall always have more water than the Americans. The level of the river bed is lower on our side. The first sill of the upper rapids crosses the whole of the river dipping towards the Canadian shore; at this point it is considerably lower than on the American side. The Canadian fall is about ten feet lower than the American, and the water naturally bears towards our side. If the hollowing out of the Horseshoe should result in a modification of the general level of the river, there is reason to believe that we would not be the sufferers.

Moreover, it must not be forgotten that the Niagara river, where the falls now exist, turns at almost a right angle, from southeast to northwest, and that, consequently, the great mass of its water strikes the Canadian shore before taking its new course.

The American channel hardly carries the surplus. Already, in order to protect the Canadian wall from erosion, special measures have been taken.

The effect of this deviation is all the more accentuated since the bed of the river becomes much narrower at the very point where its course is changed. The flow is, so to speak, choked between Goat island and the Canadian shore. The mass increasing, has a more marked tendency, by virtue of its inertia, to continue on its first course and thereby to bear towards our side.

It therefore matters little to us whether the new Horseshoe gorge in process of formation follows the centre of the river, or, as it had done for the last half century, works its way parallel to the shore of Goat island. I do not believe that the volume of the Canadian waters will be seriously affected thereby.

The same thing cannot be said of the American channel. It will be dry before the new Horseshoe gorge has reached the line which joins the upper end of Goat island to Dufferin islands.

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*Loc-cit., p. 65
†Loc-cit., p. 490.

Already, owing to tappings made at different points of the river above the falls, the general level has been so modified that nearly every spring, according to the citizens of Niagara, the ice from Lake Erie, not finding enough water to float it, runs aground at the entrance of the American channel and blocks it completely; so that the American fall for a few days ceases to exist. This phenomenon, which was exceptional before the establishment of the electric works, seems to have become an almost annual one.

7. Permit me to make the statement here, although this matter is not directly relevant to my instructions, that the danger which really threatens Niagara falls is not so much from the wearing of its bed as from the abstraction of a large proportion of its waters by the electrical companies now or likely to be established.

Already, according to Dr. Clarke,* when the five electric companies now in operation at Niagara produce to their charter limits and abstract a total of 48,000 cubic feet of water per second, the water level will reach the bottom of the river at the American shore. And if these abstractions are multiplied, always above the falls, the American fall will disappear finally; even the Horseshoe will lose a part of its majestic splendour.

Though, as before observed, this question, an extremely delicate one, whether considered from the standpoint of public or private interests, does not strictly enter into the scope of the present notes, I have deemed it well to place my views on it before the International commissioners, in view of the high competence, of the great influence it is in their power to exercise with the constituted authorities. I may add that the preservation of the falls in their present general state may itself become the object of an International understanding.

So grand a natural phenomenon, which every year attracts, it is said, more than eight hundred thousand visitors, is surely worth considering the insurance of its perpetuity.

On this subject may be read to advantage the very interesting paper by Dr. Clarke, entitled, 'The Menace to Niagara,' published in the *Popular Science Monthly* for April last, and from which I have freely borrowed for the present report. In it the question is treated without *parti pris* and with great soundness of independent judgment.

8. Conclusion. Every year Niagara falls are receding. The process of this retrocession is such that it is impossible to formulate any precise forecast as to its future rate and direction outside of generalties, all is more or less problematic.

This phenomenon is liable to many variations, owing to possible changes in the physical consistency of the geological beds over which the water descends. 'What will be the character of the channel which is now being formed,' says Mr. Grabau, 'can only be a matter of conjecture.'

At all events, I do not think the Canadian waters are, for long years to come, apt to suffer greatly from the retreat of the falls, whatever be its direction.

During the recedence of the Horseshoe towards the upper sill of the rapids, everything leads me to believe that the Canadian side will always have its great share of the hydraulic force of the river.

Once the falls have reached the upper ledge of the rapids in many hundreds of years (1,000 years, according to Grabau), assuming that the mean rate of retreat remain constant, which is far from certain, the retreat of the cataract will enter into a phase of relative rest, and the erosion will henceforth hardly take any other form than the wearing out of the lips of the new gorge, particularly that of the Canadian side.

The American channel will have then long disappeared, and the intakes of the Canadian works, after having gradually become impoverished as the line of the fall is rectified and identified with the sill of the upper rapids, will end by being dry.

The fall will then be at the first sills of the rapids. It will be higher than the present cataract by some fifty feet, and will noticeably resemble the drawing which

* Loc-cit., p. 500.

Father Hennepin left us of that which he saw in 1673, when the Horseshoe did not exist, and the American and the Canadian falls were on one plain. The only difference will be that the fall will then be single, Goat isand having joined the American shore

Any one desirous of knowing in how many years the falls will reach that point should study the figures of Mr. Grabau, quoted above. Perhaps it is more prudent to simply say with Dr. Clarke, that these estimates of geological chronology express interesting possibilities, but hardly rise to the dignity of probabilities.*

Mr. Grabau,† himself, after having reproduced the figures which, according to C. H. Hitchcock, G. F. Wright, Spencer, Taylor, Pohlman and Lyell, give the geological age of Niagara, very wisely concluded by the statement that such figures are hardly more than the expression of personal opinions, and that they exclusively reflect the ideas which these writers have formed as to the rapidity of the erosion caused by the river. And he adds that there may be a reverse of causes still unknown which may have contributed, in a large measure, to lengthen or shorten this period. These causes, once known, will probably entail the revising of all calculations and will, no doubt, lead to different results.

In continuation of this thesis, it might be said that the factors yet undiscovered will possibly considerably modify all that has already been thought and written on the retreat of the falls in particular. I believe there are few scientific problems in which the personal equation plays so great a part. This is why the present report, while being little more than a summary of the principal works on Niagara, contains such a small proportion of the figures and calculations so abundant in the numerous monographics written on the subject.

(Signed) J. C. K. LAFLAMME.

QUEBEC, November 9, 1905.

'APPENDIX 'W.'

DEPARTMENT OF STATE,
WASHINGTON, January 25, 1905.

MY DEAR MR. AMBASSADOR,—With reference to your note of the 3rd inst., asking that a scheme for diverting the waters tributary to the international water boundary system by the Minnesota Canal and Power Company, of Duluth, Minnesota, be not carried out, pending the meeting of the International Water Boundary Commission, I take pleasure in informing you that I have received a letter dated the 19th instant, from the Secretary of the Interior, stating that his department had directed the Commissioner of the General Office, before whom the application of the said company is pending, to suspend further action in the case, until advised as to the results of the international boundary inquiry.

I am, etc.,

(Signed) FRANCIS B. LOOMIS.

HIS EXCELLENCY THE RIGHT HONOURABLE SIR H. M. DURAND, G.C.M.G.

APPENDIX 'X.'

EXTRACT from a Report of the Committee of the Honourable the Privy Council, approved by the Governor General on September 19, 1905.

On a report dated August 11, 1905, from the Minister of Public Works, stating that in January, 1905, Mr. Edward Wellinigton Backus, of Minneapolis, made an ap-

* Loc-cit, p. 489.
† Loc-cit. p. 85.

plication for himself and those associated with him under chapter 92 of the Revised Statutes of Canada, for the right to construct a power dam across the Rainy river from a point in the town plot of Alberton, now the town of Fort Francis, to a point in the State of Minnesota, United States, opposite the said town of Fort Francis.

The Minister further states that with this application were also transmitted to the Department of Public Works plans showing the nature of the work to be performed, one being a sketch showing the location, and the other showing details of the mode of construction of the work.

The Minister further states that on January 19, 1905, the said E. W. Backus made with the government of the province of Ontario a certain agreement whereby the applicants obtained from the government of the said province a grant in fee of lands and power on the Canadian side of the international boundary for the purpose of developing the water power there and utilizing storage facilities with a view of creating a large amount of power for the operation of mills and other manufacturing establishments, the consideration of such acquisition being stated in the agreement at $5,000; the agreement in question containing several conditions as regards the character and dimensions of the works; the raising and maintaining of the waters of Rainy lake; the use or non-use of flash-boards; the construction of power-houses; the expenditure of $50,000 on the works within nine months from the date of the agreement; the delivery of power to the town of Fort Francis after January 1, 1907, for municipal purposes and for public utilities; the operation and delivery of said power; the rate at which it shall be furnished; the intervention of the Lieutenant Governor in Council concerning the price of the power or energy to be created, and several other agreements of different kinds always bearing upon the delivery and price of the energy to be manufactured out of the works approved by the agreement.

That the agreement also, in clause 14 thereof, reserves and excepts all the rights of the Dominion of Canada in navigation and the improvement thereof by the construction of locks, dams, canals, and otherwise, the government of the Dominion or the province of Ontario to have the power to enter upon the premises and maintain and repair such canals, locks, dams or other works for the improvement of navigation without compensation. It is also agreed that no sawdust, chemical or other refuse of any kind shall be placed or deposited in the river, etc.

That the application so made by Mr. E. W. Backus, on behalf of the Ontario and Minnesota Power Company, was referred to the Chief Engineer of the Department of Public Works for report, and that the officer in question stated that in so far as the construction of the dam is concerned, it would in no way interfere with navigation above or below the falls of Fort Francis, but would, in fact, be an improvement; that the dangerous rapids two miles above Fort Francis would be flooded, thereby improving materially the navigation; that the freshet waters stored in Rainy lake could be let out during the season of low water, thereby also considerably improving the navigation of the river between Fort Francis and Lake of the Woods; and that the only objection that could be raised to the proposed elevation of the dam is provided for by a proposed revetment wall to be constructed by the company, and also by a clause in the Act of incorporation of the Company, which makes all damages to lands caused by their works a charge to be borne by them. The Resident Engineer quotes the opinion of the Chief Engineer of the United States army, who says that the height of the dam appears to him unobjectionable, provided that the said dam is operated so as not to reduce the flow of Rainy lake during the low water season.

That in addition to the report obtained from the Engineer of the Department of Public Works the matter was referred to the Department of Justice, and that it reported that, in so far as the Dominion government was interested in the proposed works it had to consider them in so far as they affected the navigation and in so far as they affected the fishing, and also in so far as they could affect an unfinished canal and lock at the place where the dam is to be erected.

That at the session of parliament just closed, the Ontario and Minnesota Power Company have obtained an Act by which that company are authorized to construct

and operate a water-power now existing at Fort Francis and build all necessary works for that purpose, provided no work so authorized shall be commenced until plans thereof shall have been submitted to and approved by the Governor General in Council. The Act in question contains several clauses referring to the production of power or electrical energy, the delivery thereof, the construction of power-houses, etc., the settlement of the price for power by the Board of Railway Commissioners, a clause is also inserted to prevent the diversion of that energy for use in the United States without an order of the said Railway Commissioners, the board having full jurisdiction to inquire into the matter as often as necessary, and to prescribe any action on the part of the company not inconsistent with the Act passed, etc.

That on communication with them on the matter, the Department of Marine and Fisheries have sent to the Department of Public Works a plan of the fishway which they think should be erected by the company in connection with their works, the said fishway to be built subject to the inspection and approval of an officer of the Department of Marine and Fisheries.

The Minister recommends, in view of the above application of the Ontario & Minnesota Power Company; of this agreement with the government of the province of Ontario, a copy of which is hereto annexed; of the Act passed by the parliament at its last session, and of the reports made by the Chief Engineer of the Department of Public Works, and the report of the Department of Justice, that authority be given to approve of the plans submitted by the said company, subject to the following conditions, viz. :—

1st. That the company shall not, in the execution of their works, construct them in such a manner that they will in any way interfere with the navigation of the Rainy river either above or below the point where the works are to be constructed at any time during the season of navigation, and that they shall not increase the height of water either by the construction of the dam itself or by placing flash-boards upon the said dam in such a way as to reduce the natural depth of water below said dam, nor generally will they interfere in any way detrimental to the said navigation.

2nd. That at any time during the construction of the works, or after their construction or during their operation, the Minister of Public Works shall have the power, when it shall appear to him necessary after a proper examination, to regulate the retention or flow of water by or over the dam; to enter on the works for such investigation, and also to have the right to make such regulations and issue such instructions as may, to the said Minister, appear advisable and necesary in the interest of navigation.

3rd. That the permission be granted subject to the conditions inserted in the agreement between the government of the province of Ontario and the applicants, and also subject to all the conditions and reservations expressed in the Act of Parliament passed at its last session respecting the Ontario & Minnesota Power Company, Limited.

4th. That no work will be done under the permission to be given to the Company which will in any way interfere with the lock, canal or other works of public nature already executed at Fort Francis by the government of Canada, nor will any bridge or any other erection or construction of any nature whatsoever on, over or across said lock, canal or other works, be built, nor generally shall any use be made thereof, except by permission in writing given to that effect by the Minister of Public Works.

5th. That no work for the construction of any dyke or retaining wall provided on the plans submitted by the company shall be commenced until the detailed plans thereof shall have been submitted and approved of by the Minister of Public Works,

6th. That should it appear necessary to the Minister of Public Works during the course of construction of the works hereunder to be authorized to cause said works to be interupted for any changes, alterations, etc., as to him may appear advisable, then the company will immediately cause the said works to be stopped forthwith, and will carry out any alterations or changes which may be ordered by the said Minister, and will conform in every way to the directions of the said Minister.

7th. That the company shall provide in the execution of their works for the construction of the necessary fishway upon a plan and in a manner approved by the

Department of Marine and Fisheries, the officers of that department to have, for that purpose, the right of entering upon the work and seeing to the proper construction of the said fishway in accordance with whatever plans and specifications they may prepare.

The committee submit the same for approval.

(Signed) JOHN J. McGEE,
Clerk of the Privy Council.

APPENDIX 'Y.'

EXTRACT from a report of the Committee of the Honourable the Privy Council, approved by the Governor General on November 21, 1905.

The committee, on the recommendation of the Minister of Public Works, advise that, in view of the appointment of Mr. J. P. Mabee as one of the Justices of the High Court of Ontario, Mr. George C. Gibbons, K.C., be in his place appointed chairman of the Canadian section of the International Waterways Commission.

(Signed) JOHN J. McGEE,
Clerk of the Privy Council.

APPENDIX 'Z.'

DETAIL REPORT OF THE SUB-COMMITTEE MENTIONED AT PAGE 9.

Index of Matter Contained in this Report.

1. The River St. Clair.
2. The St. Clair flats canal and Lake St. Clair.
3. Lake Huron.
4. St. Marys river.
5. The works of the Michigan Lake Superior Power Company.
6. The new West Neebish channel.
7. The works of the Chandler-Dunbar Water-Power Company and the Edison Sault Electric Company.
8. The revocable licenses granted by the United States War Department to the Chandler-Dunbar Water-Power Company.
9. The works of the Consolidated Lake Superior Power Company operating on the Canadian side.
10. The Canadian ship canal.
11. The United States ship canal.
12. St. Marys river west of the ship canal, and White Fish bay.
13. Lake Superior.
14. The harbours of Port Arthur and Fort William.
15. The water-power of Kakabeca falls.
16. The harbour of Duluth.
17. The proposed works of the Minnesota Canal and Power Company.
18. The works of the Ontario and Minnesota Power Company at Koochiching falls.
19. The harbour of Chicago and the Chicago drainage canal.
20. Lake Michigan.
21. The Detroit river and Lime Kiln crossing.

DETAILED relation of an investigation made by a sub-committee of the International Waterways Commission, through the lakes and rivers connecting the same, including a visit to Sault Ste. Marie, Port Arthur, Fort William, Duluth, Chicago, Detroit &c.

A committee, composed of Mr. James P. Mabee, chairman of the Canadian section, Mr. George Clinton, member of the American section, and the writer, Secretary of the Canadian section, proceeded to Sault Ste. Marie, on August 12, 1905, to investigate and report upon the uses of the waters of St. Marys river, as set forth in the Act of Congress, approved on April 13, 1902. In section 1, page 35, the duties of the International Waterways Commission, in regard to the matters at the Soo, are described as follows:—

'Subject to the express precedent conditions hereinafter mentioned, the Michigan Lake Superior Power Company, of Sault Ste. Marie, Michigan, its succesors and assigns, after first obtaining consent of the Secretary of War and the Chief of Engineers, and their approval of the said canal and remedial works proposed, is hereby authorized to divert water from the St. Marys river into its water-power canal now being constructed at Sault Ste. Marie, Michigan, for water-power purposes, while and so long as such works and diversion of water from said river shall not injuriously affect navigation therein, nor impair or diminish the water levels or any natural increase thereof, either in Lake Superior or in the United States ship canals and locks or the navigable channels, locks, or ship canals connected therewith, whether natural or artificial, now existing or which may hereafter be established or created by the United States for navigation purposes; and conditioned further, that said company shall establish, maintain and operate suitable and sufficient remedial and controlling works in the rapids of said river, to the approval of the Secretary of War and the Chief of Engineers; and said company shall maintain and operate said canal and works in accordance with any rules and regulations that may hereafter be recommended by any international commission and that shall become operative. Whenever, in the judgment of the Secretary of War, the operation of said canal and remedial and controlling works, or either of them, either in themselves or in conjunction with any other canal or canals in the United States or Canada which now, or hereafter may, exist, is injuriously affecting water levels or the navigation of Lake Superior, the River St. Marys, or other channels, locks or ship canals connected therewith as hereinbefore provided, he shall impose upon said company such rules and regulations for the operation of said canal and remedial works, as may, in his opinion, be necessary to prevent such injury. It shall become his duty, and he shall have the authority to enter upon the property of said company and to close said canal in whole or in part to the extent necessary to maintain water levels and to require said company, at its own expense, to remove, add to or modify said works or any part thereof to the extent necessary to maintain water levels. Neither the Secretary of War nor the Chief of Engineers or any officer or other person acting under direction of them, or either of them, shall be in any way liable by reason of anything done in the execution of this provision.

'All remedies herein provided, however, shall be cumulative, and shall be without prejudice to any other remedies either of the United States or of individuals for failure of the said company to maintain said levels for navigation purposes, as herein provided.

'Nothing herein contained shall be held to affect any existing riparian or other rights of any person or corporation, or the existing remedies therefor, or any action at law or equity now pending. The right is hereby expressly reserved to Congres to alter, amend or repeal the provisions contained in this paragraph.'

Mr. George Clinton went by way of Owen Sound, taking the Canadian Pacific Railway Company's steamer *Alberta,* and arrived at Sault Ste. Marie, Michigan, on Sunday, August 13.

Mr. James P. Mabee and the writer proceeded to Port Huron, Michigan, to in-

vestigate the conditions and the uses of the waters of St. Clair river and Lake St. Clair. The start was made from Port Huron, Michigan, the visitors proceeding east.

1. THE RIVER ST. CLAIR.

The St. Clair river has two different sections—the upper or undivided channel, and the lower portion. The undivided channel runs from Lake Huron to the head of Chenal Ecarte, a distance by steamer track of about 27 miles. At this point the river begins to divide into a number of channels. The one used by vessels is called the 'South Channel,' and its length, from the head of Chenal Ecarte to the southwest end of St. Clair Flats canal, is about 13 miles, making the total length of the steamboat track, from Lake Huron to Lake St. Clair, about 40 miles.

The discharge through the upper or undivided portion of the river is 206,400 cubic feet per second, when Lake Huron is at a stage of 581·40 feet above mean tide at New York. The increase of discharge per foot rise of the lake is approximately, according to the engineers of the United States Army, 19,238 cubic feet per second. The river leaves Lake Huron with a velocity, opposite Fort Gratiot, of about 5 miles an hour, and enters Lake St. Clair, through the canal, with a velocity of about 1¼ miles an hour. At intermediate points the velocity varies irregularly between these limits. The banks of the river are clay and sand and usually quite steep; there are no rocks. There are two islands in the upper portion of the river: Stag island and Woodtick island.

Extensive dredging works have been performed by the Canadian Department of Public Works at Sarnia, in front of the Grand Trunk Railway wharf and the Lake Erie ferry slip. This has been done, as Sarnia is one of the principal harbours of the Grand Trunk Railway system and a stopping place for all Canadian passenger steamers passing through the St. Clair river. From the foot of George street, 3½ to 5 fathoms can be carried close to the shore in front of and below the Grand Trunk depot and continuing down to Fromefield. A bay with shallow water extends from the foot of George street up to Point Edward. The anchorage at the head of St. Clair river below the rapids and abreast of Port Huron and Sarnia is good in clay and gravel. In the rapids and abreast of Point Edward it is rocky and bad. Good holding ground and some clay are to be found on the Canadian shore below the Grand Trunk elevator. Vessels generally anchor as close to each shore as safety permits, to leave the mid-channel clear for passing vessels. Fixed red range lights at Point Edward lead into the head of the St. Claire river from Lake Huron. The front light is on the beach 107 feet back from the water edge, and is visible eight miles from all points of approach by water. The rear light is 579 feet south of the front light and visible 9¼ miles in the line of range. This range is followed by vessels until intersected by the Fort Gratiot range, on the United States side of the river.

The Port Huron rapids are about two miles above the town of the same name. The velocity of the current at this point is about 5 miles per hour. Two range lights on the American side, one mile below Fort Gratiot light, mark the sailing line through these rapids. There is good holding ground in clay or gravel bottom between Port Huron and Sarnia. The shoal at the mouth of Black river is marked by two buoys, a gas buoy about midway between the mouth of the river and the Canadian side, and a black spar buoy about 2,000 feet below the gas buoy. Between these buoys and the Canadian side there is a channel with a minimum width of 1,000 feet, and a depth of 21 feet at a stage of 581·5 feet above mean tide at New York. Between the buoys and the American side there is a depth of 14·5 feet at the above stage. This shoal is not quite stable, but is, on the contrary, increasing at a slow rate. It will be perceptible in two or three years. The channel in Black river has a depth of 15 feet up to the Grand Trunk Railway bridge. At Stag island, the American channel has a depth of 21 feet, at a stage of 577·5 feet above mean tide at New York, and a minimum width of 900 feet. The Canadian channel has a minimum width of 550 feet and a depth of 28 feet at the above stage. A crib marks the lower entrance, and two range

lights mark the upper entrance to this channel. At Corunna, oppoosite Stag island channel, the Canadian channel is in the best order. There are range lights to guide through good water past the shoals at the head of Stag island, and also past the shoals at the mouth of Talford creek, which coming from the Indian reservation, in the county of Lambton, Ontario, flows through Fromefield into the river, right opposite Marysville, Michigan.

Mooretown and Courtright, Ontario, which are just 1½ miles apart, were visited. The Lake Erie and Detroit River Railroad runs through the village of Mooretown. There are two wharfs with about 16 feet of water. Baby's creek enters St. Clair river about one-third mile below the village. At Courtright, opposite the town of St. Clair, Michigan, there is good water along the wharfs with depths of 15 to 20 feet. At St. Clair, Michigan, the American channel has a minimum width of 800 feet and a depth of 21 feet at a stage of 577:0 feet above mean tide at New York. The Canadian channel has a depth of 26 feet at the above stage, with a minimum width of about 800 feet. Pine river empties into St. Clair river at St. Clair, Michigan. The original depth of that river over the bars was 5 to 8 feet. In 1897 the channel from the mouth of the river to the shipyard was dredged to a depth of 14 feet, and in 1899 further dredging was done from the shipyard to Belknap's brickyard to a depth of 12 feet. The present available depth in these two channels is 13 and 11 feet respectively. The shoal or middle ground between the American and Canadian channels, between St. Clair, Michigan, and Courtright, Ontario, is marked by two gas buoys, one at the upper and one at the lower end.

At Sombra, Ontario, opposite Marine City, Michigan, there are two wharfs, one-third mile apart, extending about 200 yards in shallow water to 13 feet at the outer ends. At this particular point the channel on the American side is straighter and wider and therefore, more frequently used than the Canadian channel.

At Marine City, Michigan, the United States government had dredged in 1897, at the mouth of the river to the first bridge, a channel 75 feet wide and 15 feet deep. In 1899 the channel was dredged to Broadway bridge, to a width of 75 feet and a depth of 14 feet.

The vessel route at the mouth of St. Clair river is through the boundary line channel. The United States government at this point has expended large sums of money in improving the channel by driving piles and dredging between them. The greater portion of the improvements were made on the United States side of the line; but some of them were also made in Canadian waters, and inasmuch as the improved channel has completely obliterated the natural one, it follows that the improved channel, regardless of its alignment, is and has always been considered a common channel to Canada and to the United States. From the St. Clair flats to Lake Huron the route follows the boundary line, except when passing Woodtick island and Stag island, where it is in United States waters, yet, there is also a good channel in Canadian waters past the islands just named.

A short distance from Marine City, Michigan, and Sombra, Ontario, is Woodtick island, and a little farther east the village of Port Lambton, Ontario.

Past the Chenal Ecarte there is the village of Algonac, Michigan, opposite Russel island, at the head of the north channel. This north channel, opposite Pointe aux Trembles, Michigan, divides into two sections, one flowing through Chenal a Bout Rond into Goose bay, the other flowing into Anchor bay.

Opposite Grand Point, on Herson island, in the south channel, the wreck of the steamship *Minnesota,* which was burnt and sunk in October, 1903, close to Squirrel island, had been removed during the latter part of 1904, and in 1905 it was ascertained that there is at this particular site a depth of 25 feet of water.

Between Walpole island and Squirrel island there is the Canadian blind channel, which is used only by local and small craft, the average depth of water in the channel not exceeding eight or nine feet.

On the left side of Squirrel island there is also the Basset channel, which is scarcely used except by small vessels.

Between Herson island and Dickenson's island lies the middle channel, which flows from the north channel into the Big Muscamoot bay.

2. THE ST. CLAIR FLATS CANAL AND LAKE ST. CLAIR.

It will, therefore, be seen that originally the St. Clair river emptied into Lake St. Clair through several principal mouths or passes, the channels originally used being the north channel, the middle and the south passes. While each of these mouths or passes, constituting the delta known as the St. Clair flats, afforded good water, especially the north, middle and south passes, yet all were obstructed by sandy deposits forming bars in the lake.

The improvement of a channel through these flats has been the subject of discussion ever since the upper lake region had any commerce to speak of. A survey of the locality was made as early as 1841, and in 1852 the United States Congress made an appropriation of $20,000 for plans and examinations, having in view the improvement of the south pass. But it was only in 1855 that the work of improving the navigation of the St. Clair river at the 'Flats' was actually commenced under the direction of the Buffalo Board of Trade. The funds were obtained by subscriptions from the United States lake ports interested in the lake trade. The project was to dredge a channel 60 feet wide and 12 feet deep in the middle channel of the south pass, 1½ miles west of the boundary line route now in use.

In 1857, under a United States appropriation of $50,000, the improvement was continued on the same line, and in 1858, the Canadian government contributed towards the still further improvement on the same line, which sum was expended under the direction of the Buffalo Board of Trade, under arrangements approved by the Canadian government. One of the conditions was that the money would not be spent until a channel of 125 feet wide and 12 feet deep had been first excavated by the United States, which was done. This channel was found to be difficult to maintain and navigate. The present St. Clair Flats canal was projected in 1866 by Colonel Cram, of the United States Army Corps of Engineers.

The first plan provided for a straight channel, 13 feet deep and 30 feet wide, across the Flats east of the mouth of the old channel. This was completed in 1871. The canal was protected on either side by a dike 7,227 feet long, making an aggregate of 14,452 feet of timber cribs resting upon piles driven into the original bottom of the shoal. A lighthouse was installed at each end of the eastern pier.

In 1873 the channel was deepened to 16 feet by dredging for a width of 100 feet on either side of the axis of the canal, or a width of 200 feet in all. This was done on account of the fact that the single row of sheet piles intended by the project of Colonel Cram, in 1866, for a depth of 13 feet, had not sufficient penetration to admit dredging to 16 feet for the full width of the canal.

In 1886, another plan of improving the channel was adopted. It consisted in driving a double row of sheet piling to a depth of 26 feet along the channel face of each dike, dredging the area between the dikes to a depth of 20 feet. The channel above and below the canal was to be dredged to the same depth in the river and in the lake. But, subsequently, it was considered sufficient to obtain a depth of 18 feet. This work was completed in June, 1892. The pile revetment along the channel face of each dike was then finished, and a channel of 18 feet deep from about 900 feet above the canal in St. Clair river to about 3,300 feet below the canal was available. This depth of 18 feet was obtained for the full width of the canal, viz.: 300 feet or more for its full length. At the lower end of the canal, the 18 feet deep channel graduly widened to a width of 380 feet, at a distance of 300 feet below the canal. From that point to a farther distance of 3,300 feet below the canal, the channel had a uniform width of 380 feet.

In 1891, the late Colonel O. E. Poe, of the Corps of Engineers of the United States Army, submitted an estimate for a channel of 20 feet deep, extending from a point about 1,500 feet above the canal, then through the canal and thence to about

10,000 feet into Lake St. Clair, with a width of 600 feet at its lower end. This plan was adopted and embodied in an Act of Congress of July 13, 1892.

The work was commenced in April, 1893, and completed in December, 1894, at a cost of $107,024. At the time, the dikes of St. Clair Flats canal were 7,221 feet long each, and the channel faces were riveted with double rows of sheet piling 26 feet deep, and the backs of the dikes were protected against the action of the waves by shorter sheeting. The canal had a clear width of 295 feet between the dikes, and a depth of 20 feet. The channel had also a depth of 20 feet from deep water in St. Clair river to deep water in Lake St. Clair, with a width above the canal of 650 feet, thence gradually narrowing to the canal; thence having the full width of the canal over its entire length; thence gradually widening to a width of 800 feet at deep water in Lake Erie.

The cost of the improvement of the St. Clair Flats canal, from the beginning in 1852 to 1896, is $809,859.06, divided as follows :—

Cost of North Channel of South Pass, 1852 to 1858	$ 64,829 01
Cost of South Channel of South Pass, 1858 to 1895, for completing project of 1868, channel 13 feet deep, single sheet piling	461,090 01
For completing project of 1892, including repairs to July 1, 1881	115,933 53
For completing project of 1886, channel 18 feet deep, second row sheet piling	168,007 51
Total cost	$809,859 06

In 1902, the United States Congress authorized the construction of a second channel, similar to the one already in use and parallel to it, but separated therefrom by a dike of about 100 feet wide, so as to provide a channel of 20 feet minimum depth and about 300 feet wide, from Lake St. Clair up into St. Clair river, for ascending boats, and a similar channel for descending vessels.

The work was started in 1904 and was in way of being completed during the summer of 1905. The appropriation made by the United States Congress for this improvement is $330,000, making total appropriation for the St. Clair Flats canal, from 1866 to 1903, $1,094,810. With the amounts spent in 1852 and 1856, by the United States and the Canadian governments, it makes a total expenditure of $1,149,810, incurred in this undertaking.

The St. Clair Flats ship canals, en resume, comprise the dikes, the water between the dikes, and the improved channels of approach, both above and below the dikes. The improved approach above the dikes is 800 feet long; that below the dikes 11,000 feet long, and the dikes themselves are 7,221 feet long, making the total length of canal of about 19,000 feet.

The canal is marked by two lighthouses and two gas buoys. The lighthouses show the range of both the upper and lower approaches. The gas buoys are about one mile below the dikes and mark the east and west sides of the lower approach.

The width between the dikes and the width of the upper approach is 292 feet. The width of the lower approach is 400 feet. The depth at a stage of 575·0 feet above mean tide at New York is 24 feet. During the lowest water of the season of 1904, a draught of 19 feet could be carried through this channel.

Some years ago there was a dispute as to whether the St. Clair Flats canal was in Canadian waters or in the waters under the jurisdiction of the United States government. Investigation and reports were made on this subject by the Corps of Engineers of the United States Army, and by engineers engaged by the Canadian government. The reports did not agree. But there is no doubt that part of the St. Clair Flats canal is in Canadian territory, and that this improved water communication now in general use across the St. Clair Flats, is more or less on the boundary line between Canada and the United States. As such, this water communication is com-

mon to the trade of the lakes of both countries. Article XXVII. of the Treaty of Washingfiton, 1871, states that the 'subjects of Her Britannic Majesty shall enjoy the use of the St. Clair Flats canal on terms of equality with the inhabitants of the United States.'

From the southwest end of the St. Clair Flats canal to Windmill Point lighthouse in Detroit river, the steamer track has a length of 17 miles. The area of the water surface of Lake St. Clair is 4,450 square miles. According to the United States Weather Bureau, the average annual rainfall in Lake St. Clair is 36 inches. The average date of opening of navigation at St. Clair Flats lighthouse is April 4, and the average date of closing of navigation at the same place is December 15.

After a short visit to Detroit and Windsor, the members of the sub-committee returned to Port Huron by the Detroit river and Port Huron Electric Railway.

3. LAKE HURON.

The members of the sub-committee left Monday afternoon, August 14, on the steamship *Monarch,* of the Northwestern Navigation Company, for Sault Ste. Marie, crossing Lake Huron from Sarnia to Detour in little less than twenty-two hours. The distance between Point Edward, Ontario, opposite Fort Gratiot, Michigan, to Detour passage is 220 miles. The steamer track from Fort Gratiot, Michigan, to the Straits of Mackinac is 243 miles. From Point Harris to Drummond island, in a right line, the distance is 206 miles. The maximum depth recorded is 750 feet. Lake Huron has an area of water surface of 23,200 square miles. Its drained area is 52,100 square miles, making a total area of its basin of 75,300 square miles. The average annual rainfall in Lake Huron is 32 inches. Its mean surface above mean tide at New York city, during 45 years, from 1860 to 1904, is 581·40 feet. The standard high water, established in 1838, above the mean tide at New York city, is 584:69 feet, and the standard low water above mean tide at New York city, said standard being adopted for new charts, is 578·51 feet. The mean surface of Lake Huron below the mean surface of Lake Superior is 20·89 feet, and its mean surface above mean surface of Lake Erie is 8·79 feet, the discharge of St. Clair river at the mean stage of Lake Huron (581·40 feet) is 206,400 cubic feet per second. The increase in discharge per foot rise of the lake is 19,238 cubic feet per second. The average date of opening of navigation at Sarnia, or Point Edward, is April 6, and the average date of closing of navigation at the same point is December 19.

Around Lake Huron on the Canadian side, there are storm-warning stations at the following places: Amherstburg, Bayfield, Collingwood, Depot Harbour, Goderich, Kincardine, Midland, Owen Sound, Parry Sound, Presque Isle, Sarnia, Saugeen and Tobermory. There are also life-saving stations at Collingwood and Goderich. On the American shore we find life-saving stations at Bois Blanc Island, Grindstone City, Hammond Bay, Lakeview Beach, Middle Island, Ottawa Point, Pointe aux Barques, Sand Beach, Sturgeon Point, Tawas Point and Thunder Bay Island.

The United States Weather Bureau has established storm-warning display stations at the following places, on the American coast of Lake Huron: Alpena, Bay City, Cheboygan, Detour (at the outlet of St. Marys river), Detroit, East Tawas, Harbour Beach, Lakeview Beach, Mackinac Island, Mackinaw, Middle Island, Oscoda, Ottawa Point, Pointe aux Barques, Port Huron, Presque Isle, Tawas Point and Thunder Bay Island.

4. ST. MARYS RIVER.

The vessels enter St. Marys river from Lake Huron, at Detour passage at a point 1½ miles from the lighthouse of Point Detour. They thence proceed north in a straight line for a distance of three-quarters of a mile up to Frying Pan lighthouse. At this point they turn a little to the left and proceed again in a straight line for a distance of 1½ miles to Pipe Island lighthouse, which is situated at the southeastern end of Potagannissing bay, where they turn farther to the left. From Sweet's point the

vessels again turn a little farther to the left and proceed in a straight line for a distance of 2⅞ miles to Sweet's Point light. Off Sweet's island, from Sweet's Point light, they proceed for a distance of 4½ miles, passing at a short distance off Lime island up to a point opposite Raber Point, Michigan, thence turning straight north and passing to the right of Round island, opposite Hay Point, Ontario, and Pointe aux Frenes, Michigan, covering a distance of 4 miles.

From Hay Point the vessels enter the Mud Lake channel. After a distance of 6¾ miles they reach the Mud Lake beacon, opposite Winter point, on the east end of Neebish island, thence for a distance of 4 miles they proceed north, up to the Sailors' Encampment channel, thence they reach Little Mud Lake channel, the Middle Neebish channel and the Hay Lake channel, passing to the left of Middle Hay Lake front light, and to the right of Frechette point, thence through the Little Rapids channel up to the Soo.

Navigation around the rapids of Sault Ste. Marie is provided for by two canals; one on the United States side and one on the Canadian side. Between the canal and the lighthouse at the entrance of Hay Lake channel, the United States government, during the season of 1905, has removed the Bayfield and other adjacent shoals to the extent of securing a channel of 21 feet deep and 1,500 feet wide. At the head of Sugar island, about 2 miles below the canal locks at Sault Ste. Marie, the channel divides in two. The old line of travel known as the Lake George route, passes to the northward and eastward of Sugar island through Lake George and East Neebish. The new line, known as the Hay Lake route, passes to the west of Sugar island through Hay lake and Middle Neebish. The two routes reunite at the head of Little Mud lake. The distance from Point Iroquois to Detour by the Hay Lake route is 64 miles, and by the Lake George route 75 miles. The least width of the channel by way of Hay lake is 300 feet, limited to a total distance of 8 miles. The general width of the channel is 600 feet or more, and the least depth at the present prevailing stage of water is about 19 feet. The least width of the channel by way of Lake George is 150 feet, and the least depth about 15 feet. Both roadsteads are well defined by numerous buoys and by the mid-channel ranges.

There is another important channel known as the St. Joseph channel, with least depth of 13 feet, which leaves the Lake George and Hay lake channel near their junction at the south end of Sugar island, and passing to the northward and eastward of St. Joseph island, leads into Manitoulin bay or north channel, thence to Georgian bay by way of Clapperton Main passage and Little Current, or directly into Lake Huron through channels on the east and west sides of Cockburn island, called, respectively, the Nississagi strait and False Detour channel. These channels are all in Canadian waters.

From Detour passage to Sault Ste. Marie, parts of Lake George channel from Little Rapids to the foot of Sugar island are in Canadian waters. The upper part of the channel in Little Mud lake and east channel at Sailors' Encampment, and part of the angle of the west channel, are also in Canadian waters. The United States engineers in charge of the Public Works Department of the War Office at Sault Ste. Marie, claim that the above improvements were made with the tacit consent of the Canadian government. Lake George channel was made from 1869 to 1882. Little Mud lake was dredged from 1892 to 1894 at a cost of $23,000. Sailors' Encampment channel was commenced in 1882 and finished in 1895 at a cost of $23,000. Further improvements in that channel were made from 1903 to 1905, at a cost of $11,000. Further improvements at the head of Sailors' Encampment were being made by the removal of boulders, sand and rock, from an area of 1,400 feet long and 200 feet wide on the west side of the channel just above Johnson's point, and on the east side of the channel by the removal of sunken cribs and boulder ridges covering an area of 1,800 square yards. This important work has been proceeded with during the whole summer. At the foot of Little Mud lake the angle in the channel was widened last year on the east side by the removal of 49,033 cubic yards of sand and boulders from an area of

about 15,700 square yards, and on the west by the removal of 3,941 cubic yards from an area of 2,400 square yards.

The improvement of Hay lake and Neebish channel was commenced in 1893 and opened to navigation in 1894. The result was a new line of travel through St. Marys river, 11 miles shorter and 4 feet deeper than that previously available, and one which can be navigated at night with a reasonable degree of safety. In 1902 a project was adopted providing for a channel of 21 feet available depth at low water and 1,000 feet width from St. Marys Fall canal to the foot of Hay lake, thence deepening to 21 feet the present 300 foot channel to Mud lake, via Middle Neebish, and opening a new 300 foot channel to Mud lake, via West Neebish, thus providing separate channels through this stretch for up and down bound boats.

In 1904, the United States government, in Hay lake channel, spent $2,738,081.39, and during the present season of navigation a further expenditure of $1,221,033.61 was incurred. Below the islands, at Little rapids, the channel has been improved for a distance of 10,200 feet by widening on the east side 150 feet to a depth of 21 feet. The channel through the Little rapids section of the upper entrance to Hay lake is, therefore, at present 600 feet wide. The deepening to 21 feet through Little rapids was completed in 1904, from the head of the islands to Frechette point. The deepening from Frechette point to Six Mile point was in progress during the summer of 1905.

The deepening of Nine Mile point shoal to 22 feet was commenced in 1904 and was finished in August, 1905.

A very large bboulder shoal with at least a depth of 12 feet over it, called Crab Island shoal, lies in 23 feet of water near the western end of the shoal, about half a mile southwest of Barbed point and about 1,000 feet east of the usual course of vessels through Detour passage. There are a number of boulders in the vicinity with less than 20 feet over them. A red spar buoy marks the most westerly boulders of Crab island. A derrick-boat and diving outfit have been employed during midsummer of 1905 in removing the boulders from the west end of this shoal.

The sub-committee arrived at Sault Ste. Marie, Ontario, on Tuesday afternoon, August 15. They were met at the Canadian government dock by Mr. George Clinton and Mr. Lochlan P. Morrison, junior assistant engineer of the River Improvements office, who, in the absence of Lieut.-Col. Chas. E. L. B. Davis, of the Corps of Engineers of the United States army, in charge of the district, had been directed to receive the committee officially. The members of the committee immediately embarked on the United States government steamer *Alfred Noble,* and crossing the river they proceeded at once to visit the power canal and the plants of the Michigan Lake Superior Power Company, being accompanied by Mr. Louis H. Davis, Chief Engineer of the Consolidated Lake Superior Power Company.

5. THE MICHIGAN LAKE SUPERIOR POWER COMPANY.

Was incorporated in virtue of the Act No. 39 of the Public Acts of the State of Michigan, 1883. This Act, with the amendments thereto, is the legal authority for the Michigan Lake Superior Power Company to do business in the state of Michigan. The congress of the United States in 1902, by an Act approved on June 13, making appropriation for the construction, repairs and preservation of certain public works on rivers and harbours and for other purposes, authorized the Michigan Lake Superior Power Company to build its canal on the American side, and after the approval of this Act, the United States War Department granted the company the following permit :—

'Whereas, by the River and Harbour Act, approved June 13, 1902, it is provided (32 Stats., 361) that, subject to the conditions therein mentioned :

'The Michigan Lake Superior Power Company of Sault Ste. Marie, Michigan, its successors and assigns, after first obtaining consent of the Secretary of War and the Chief of Engineers, and their approval of said canal and remedial works proposed, is hereby authorized to divert water from the St. Marys river into its water-power

canal, now being constructed at Sault Ste. Marie, Michigan, for water-power purposes, while and so long as said works do not affect navigation therein, nor impair or diminish the water levels or any natural increase thereof, either in Lake Superior or in the United States ship canal and locks, or the navigation channels, locks, or ship canals connected therewith, whether natural or artificial, now existing or which may hereafter be established or created by the United States for navigation purposes :

'And whereas, the said Michigan Lake Superior Power Company has submitted for approval of the Secretary of War and Chief of Engineers plans of its water-power canal and remedial works for the diversion of the water from the St. Marys river authorized by said Act, and has applied for consent of the Secretary of War and Chief of Engineers to such diversions :

'And whereas, the Chief of Engineers has approved the said plans, and has given his consent to such diversion, subject to the acceptance by said company of the conditions hereinafter specified :

'Now, therefore, this is to certify that the Secretary of War hereby approves the said plans, which are hereto attached, and hereby gives his consent to the diversion of water from the St. Marys river, as authorized by said Act, subject to the acceptance by said company on the following conditions :

'1. That the regulating works, including escape valves at power-house, controlling works, and remedial works, shall be operated under the inspection of the engineer officer in charge of the St. Marys Falls canal, who shall have access to them at all times.

'2. That when the mean level of Lake Superior at the canal for any calendar month falls below 601·5 feet above mean tide at New York, according to the levels of the United States Survey Office, the flow through the canal shall be reduced, the amount of reduction increasing as the monthly mean level falls until it reaches 601·0, when all flow shall be stopped until the monthly level again exceeds 601·0, all without claims against the United States, or against any officer thereof.

'3. That in addition to the requirements of condition 2 (*supra*), all flow shall likewise be stopped, without claim against the United States, or against any officer thereof, should the monthly mean level of the lake remain below 601·5 for a period of six consecutive calendar months, and shall not be resumed until the monthly mean level shall exceed 601:5.

'4. That when the monthly mean level raises above 603:0, the flow through the canal and the remedial works shall be increased to their maximum capacity, and shall so continue until the monthly mean level shall be less than 603:0 without claim against the United States, or against any officer thereof.

'5. That should the monthly mean level of the lake remain above 603:0 for a period of six consecutive calendar months, said company shall alter its works at its own expense as soon as practicable, so as to allow more flow.

'6. That the United States shall have the right to assume entire control of the flow of the water through the canal and remedial works in cases of accidents or emergencies temporarily affecting navigation through the United States ship canal.

'7. That should cross currents, detrimental to navigation, be created by the intake or by the outflow of the canal, said company shall construct such booms, training walls, or other works, as may be necessary to remedy the evil.

'8. That said company, in its arrangement and construction of remedial works, shall leave a suitable channel and water flow for the passage of logs over and through St. Marys falls.

'9. That these limitations are in addition to the special limitations of the Act of June 13, 1905, regarding riparian or other rights of any person or corporation and the remedies therefor.

'10. That the elevations above mean tide at New York, above specified, are those established and in use at this date by the Office of the Survey of the Northern and Northwestern Lakes, commonly known as the Lake Survey Office at Detroit, Michigan.

'11. Finally, the object and claim of the foregoing paragraphs being to hold the waters of the lake and river under the absolute control of the United States in the interest of navigation, it is expressly understood that said company shall not be entitled to damages should the government at any time or for any cause exercise its right to control and suspend the flow of water through the power canal, in the interest of navigation.

'Witness my hand, this 12th day of December, 1902.

'(Signed) ELIHU ROOT,
'*Secretary of War.*

'This instrument is also executed by the Michigan Lake Superior Power Company by Francis H. Clergue, its president, thereunto lawfully authorized, this ninth day of December, 1902, in testimony of the acceptance by said company of the foregoing conditions.

'THE MICHIGAN LAKE SUPERIOR POWER COMPANY,
'By Francis H. Clergue,
'*President.*

'Attest:
'H. Von Schon,
'F. T. Trempe.
'(Seal)
'Office, Chief of Engineers, December 2, 1902.

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'War Department.'

The plant of the Michigan Lake Superior Power Company has been designed to develop a portion of the power of the St. Marys rapids.

To accomplish this end, water is diverted from the St. Marys river above the rapids into a canal running through the city of Sault Ste. Marie to a power-house situated near the shore of St. Marys river, about 4,400 feet below the rapids, and is there returned to the river, after passing through turbines, which, together with electric generators, convert the hydraulic power into mechanical and electrical power. The plant is designed to develop about 45,000 horse-power at the turbine shafts, equivalent to about 42,000 electric horse-power at the switchboard in the power-house. Of this portion about 8,000 electric horse-power is now being utilized by the Union Carbide Company and Tran-Sault Ste. Marie Traction Company.

The plant consists of the canal, head gates, power-house and power-house equipment.

The canal consists of the intake, canal proper, fore-bay and tail-race. Its total length from the harbour line above the rapids to harbour line below the rapids is about 12,000 feet.

The head of the intake is located along the established United States harbour line, immediately west of the entrance to the United States ship canal, and its width along the harbour line is 990 feet, and its depth is 18 feet, so that the velocity of the water at the entrance will be, when the canal is operating at its full capacity, about $1\frac{3}{4}$ cubic feet per second. The intake as it continues easterly, gradually narrows to a width of 204 feet, and deepens to a depth of 23 feet, below mean still water level at a point about 1,500 feet from the centre line of the entrance, thence continuous at the width given for a distance of about 900 feet to the head-gates. The sides of the intake are retained by rock-filled timber cribs with slopes of riprap paving above the water line.

The canal proper begins at the head-gates, and for about 2,700 feet was excavated largely through sandstone bedrock to a width of about 200 feet, with substantially vertical walls. Where not excavated in rock the earth is retained by masonry retaining walls. Continuing east from the rock section, the canal extends for about 3,000 feet with rock bottom and timber-lined sides, and thence for another 3,000 feet through

clay and sand, the bottom and sides both being timber-lined below the water line. The slopes above the water line are paved with riprap. At the end of the clay section, the canal widens into a forebay, which delivers the water to the turbine chambers or penstocks in the power-house. The water, after passing through the turbines into the tail pits, flows into the tail-race, the width of which is the full length of the power-house, 1,340 feet, and thence is discharged into the river with a velocity of less than 1½ feet per second.

In the forebay are located steel racks which collect floating wood, ice and other objects, and these divert such material through a wooden channel into a spillway, passing through the power-house to the tail-race.

The power-house is 1,340 feet long by 80 feet wide. Its foundation is a grillage of timber filled with concrete, resting on piles driven to bed rock. The substructure is divided by concrete walls into 81 tail pits, each one of 80 of which receives water from a turbine chamber or penstock immediately above it. The upstream ends of these tail pits are closed by segmental concrete arches and the roofs of the tail pits are monolithic concrete arches, which form the penstock and dynamo room floors. The superstructure has stone and concrete masonry walls with floors of steel and concrete, supported by steel columns, and is covered by a steel roof. The forebay side consists of 80 penstocks and one spilling way opening. These penstocks contain the turbines. They are 16⅔ feet, centre to centre, 15 feet in width clear, and are closed on the downstream side by semi-cylindrical steel bulkheads, attached to steel and concrete partition walls. The penstocks take up about one-half of the first floor space. The first floor of the river side of the power-house, which is just north of the penstocks, forms the dynamo room. The second and third floors in the power-house are arranged for the location of machinery for manufacturing plants which now use, or may use, power generated by the plant.

At the west end of the power-house is located a boiler plant of about 250 horsepower capacity with centrifugal pumps for pumping, in the event of necessary repairs to the canal or power-house, from the canal such water as will not drain by gravity into the tail-race.

The equipment of the power-house will be 80 penstock units, each consisting of two pairs of 33-inch horizontal turbines mounted on one shaft, which extends through the steel bulkheads into the dynamo room. To each turbine shaft there will be directly connected an electric generator of 375 to 400 K. W. capacity. There are at present installed 42 turbine units and 32 electric generators, 23 of the latter belonging to the Union Carbide Company, and 9 to the Michigan Lake Superior Power Company. The capacity of each generator belonging to the Union Carbide Company is 375 K.W., and of each of the generators belonging to the Power Company 400 K.W.

The delivery of water into the power canal is controlled by head-gates, located about 2,400 feet east of the intake entrance, at the beginning of the rock section of the canal. They consist of four Stonie steel sluice gates, operated between masonry piers by hand winches and suitable trains of gear. The piers, gate sills and abutments are all founded on rock. The gates are counter-balanced for ease in operating. The piers between the gates are spanned by steel and concrete arches, making a bridge with ample strength for either railroad or street purposes.

The mean difference in height between the upper and lower levels of St. Marys river is about 19·3 feet. It is estimated that when the canal is operating to its full capacity the loss in frictional and other resistances to the flow of the water will be about 3 feet, making the mean effective head at the power-house about 16 feet or a little over.

The total cost of the Michigan Lake Superior Power Company's plant to date is $6,500,000.

6. THE WEST NEEBISH CHANNEL.

On Wednesday, the 15th, the sub-committee embarked again on board the steamship *Alfred Noble,* kindly placed at their disposal by the Office of the Corps of En-

gineeers of the United States army at the Soo, to visit the new double track channel which is now being constructed. This will be another road through Hay lake and the West Neebish which will be completed in 1908.

Contract has been let for the construction of a channel 300 feet wide and 22 feet deep, for a distance of 13,300 feet through the rapids, with a stone retaining wall along each side of the rock cut. About 6,000 lineal feet of the cut was to be inclosed by cofferdams and the included portion of the channel is excavated in the dry. These intermediate dams shut off all flow of water through the West Neebish. The upper and lower main dams were partially constructed by a dredge casting over excavated material consisting of gravel, sand or clay, and finished by depositing stones and gravel until the height of the dam was about 6 feet above the water surface. The struction of these two cofferdams was commenced in August, 1904, and finished in August, 1905.

The contractors, at the close of the year 1904, had also made good progress in other preliminary works in connection with the construction of this 300-foot channel through the West Neebish rapids, including roadways, framing of cable towers for the Telferage system, boarding houses, store, dock and assembling of plant.

By the construction of the two temporary cofferdams, the water was raised three-quarter inches in pool above the upper dam. The contractors are employing, for the excavation of this solid rock bed, two air compressors of 750 and 250 horse-power respectively, and of 75 pounds pressure. The sides are first being channeled, and a vertical retaining wall is being built along each side of the channel to a height of six feet above low water. Drilling is done with 16 drills, and 50 per cent dynamite is used for blasting. The material is removed by four cableways, two of them 800 feet between the towers, and two of them 1,100 feet between the towers. The towers are 90 feet high. The skips used are steel, with dimensions of 8 x 8 x 2½ feet. There is a steel shovel of 76 tons weight, which is used in loading skips, and two more shovels of 120 tons each are to be added next spring. The average working force is 150 labourers and 49 skilled mechanics and foremen. There were 1,586,000 cubic yards of rock to be excavated above 22 feet grade at the rate of $1.36 per cubic yard, and 95,000 cubic yards between 22 and 23 feet grades are to be excavated at 68 cents per cubic yard. As above stated, this gigantic work was begun in May, 1904, and will probably be completed before the opening of navigation in the spring of 1908. That would make what we may call a double track channel of 300 feet from Sault Ste. Marie to Detour Point.

The mean level of Lake Superior for the years 1860 to 1904, both inclusive, is 602·29 feet above mean tide at New York. The discharge of the St. Marys river for this elevation of the lake, as measured in 1902, is 75,000 cubic feet per second. The increase in discharge per foot rise of lake is approximately 15,500 cubic feet per second.

The United States engineer of the War Department in charge at Sault Ste. Marie informed the sub-committtee that they are now preparing a plan for a 25 foot channel, thus deepening the middle and west channels an additional four feet, without further widening. The material which has been excavated from the St. Marys river is silt, sand, clay, gravel, stones, boulders, hard pan, sandstones and limestone bed rock. The dredging operations are all conducted under contracts. The inspectors of dredging are paid by the United States government at the rate of $85 per month and their board while employed during the working season. The total amount spent up to the present time by the United States government in improving St. Marys river is as follows: Canal, $8,000,000; river channel, $4,000,000; making a total of $12,000,000.

Returning to the Soo in the afternoon, the committee visited the plants and works of the Chandler-Dunbar Water Power Company and those of the Edison Sault Electric Company.

7. THE CHANDLER-DUNBAR WATER POWER COMPANY, AND THE EDISON SAULT ELECTRIC COMPANY.

The Chandler-Dunbar Water Power Company was incorporated in virtue of the same Act which gave legal existence to the Michigan Lake Superior Power Company, viz.: Act No. 39 of the Public Acts of the State of Michigan, to authorize the formation of a corporation for the purpose of excavating, constructing, and maintaining water courses with water-power appurtenant thereto, for accumulating, storing, conducting, selling, furnishing and supplying, upon an agreed rental, water and water-power for mining, milling, manufacturing, domestic, municipal, and agricultural purposes.

The Chandler-Dunbar Water Power Company claim to have been for many years past, the owners of the south bank and shore of the St. Marys river at the rapids, in the city of Sault Ste. Marie, in the County of Chippewa, in the State of Michigan. from a point 700 feet above and west of, to a point of 2,300 feet below and east of the south end of the International Bridge, across St. Marys river, and also of the bed of the St. Marys over and against said rapids extending from the south bank and shore of said river northerly to the international boundary line between the United States on one side and the Dominion of Canada on the other side; and extending from above the head of the falls in the St. Marys river nearly to the foot of the said falls.

The volume of the flow in St. Marys river at the ordinary low water stage, at and past the land of the Chandler-Dunbar Water Power Company, over and above the amount required for navigation, is, according to the Engineer of the company, about 3,600,000 cubic feet per minute, or 60,000 feet per second. At higher stages the flow is naturally much more. There is, upon the lands of the company, a fall of the water to the extent of about 12 feet, according to an estimate of the Engineer of the company.

The Chandler-Dunbar Water-Power Company claim that at least half of this flow of water is appurtenant to the American shore and appurtenant to the lands of the company. It is, therefore, the intention of the company and its lessee, the Edison Sault Electric Company, to take and use, where it passes the lands of the company, for the production of available power all of such flow appurtenant to the said lands, excepting only such amount as may be required for navigation. The character of the proposed works is in each case a dam containing penstocks and wheels; the dam is designed to raise the level of water in the rapids, above the dam, to the level of Lake Superior, or as near as may be. The penstocks and wheels to have sufficient capacity to discharge and utilize all the flow of the rapids of the St. Marys river south of the international boundary. The penstocks will be provided with waste weirs for use when the wheels are to be stopped. The tailraces will be excavated to as low a level as circumstances will permit in order that the entire available head may be utilized.

The Chandler-Dunbar Water-Power Company are building their present works in virtue of certain permits which have been granted them by the United States War Office, and they also claim the ownership of what is generally called Island No. 1 and Island No. 2, in virtue of letters patent, granted them on December 15, 1883. Said letters patent read as follows:—

'UNITED STATES OF AMERICA.

'To all to whom these presents shall come, Greeting:

'Special Act of Congress
'April 11, 1860.

'Whereas, in pursuance of the Special Act of Congress, approved April 11, 1860, entitled, "An Act for the relief of the legal representatives of Charles Porterfield, deceased," there has been deposited in the General Land Office, warrant No. 123, for 40 acres in favour of William Kinney and Thomas J. Michie, as executors of Robert Porterfield, deceased, or their assignees, should any assignment from them as such executors, under the provisions of the will of Robert Porterfield as directed by the Act

in question, be duly indorsed thereon, and, whereas there is indorsed on said warrant an assignment duly executed in favour of William Chandler, with evidence that the same has been duly located upon all that certain lot or parcel of land, being a portion of section numbered six in township numbered forty-seven, north of range numbered one, east of Michigan meridian in the State of Michigan, designated upon the official plan of the survey of the village of Sault Ste Marie, made by United States Deputy Surveyor Thomas Whelpley, in 1854 and 1855, under and by virtue of an Act of Congress, approved September 26, 1850, entitled, "An Act providing for the examination and settlement of claims for land at the Sault Ste. Marie, in Michigan," which survey was approved by Leander Chapman, United States Surveyor General for the state of Michigan, September 4, 1855, and is now on file in the office of the Commissioner of the General Land Office at Washington, D.C., as "part of the Indian reservation," said tracts being bounded by the River St. Marys on the east, north and west, and by the St. Marys Falls canal and portage street extended on the south, the same being more particularly described by courses and distance as follows: Beginning at the intersection of the principal meridian of Michigan with River St. Mary, being 90 links north of St. Mary's canal, and being the northwest corner of northeast part of claim No. 3; thence north 71 degrees, 39 feet east 4·00 chains; thence north 4 degrees, 37 feet west 3·65 chains to the northwest corner of said tract. being the initial point of the survey of said tract; thence south 4 degrees, 37 feet east 1·00 chains; thence south 77 degrees, 10 feet west 15·00 chains; thence north 85 degrees, 23 feet east 18·89 chains; thence north 18 degrees, 39 feet west 2·06 chains; thence north 80 degrees, 40 feet west 1·66 chains; thence south 88 degrees, 15 feet west 4·01 chains; thence north 84 degrees, 41 feet west 4·06 chains; thence south 85 degrees, 23 feet west 3·00 chains; thence north 89 degrees, 54 feet west 4·01 chains; thence south 79 degrees, 57 feet west 4·02 chains; thence north 69 degrees, 19 feet west 4·42 chains; thence south 87 degrees, 56 feet west 8·9 chains, to the initial point of survey; being the northwest corner of the said tract containing 9·10¾ acres of land, more or less, in the district of land subject to sale at Marquette, Michigan, according to the official plat of the survey of the said land returned to the General Land Office by the Surveyor General. Now know ye, that there is, therefore, granted by the United States unto the said William Chandler the tract of the land above described, to have and to hold the said tract of land with the appurtenance thereof, unto the said William Chandler and his heirs and assigns forever.

'In testimony whereof, I Chester A. Arthur, President of the United States of America, have caused these letters to be made patent, and the seal of the General Land Office to be hereunto affixed.

'Given under my hand at the city of Washington, the fifteenth day of December, in the year of our Lord, one thousand eight hundred and eighty-three, and of the independence of the United States the one hundred and eighth.

'(Seal)

'United States General Land Office.

'By the President, CHESTER A. ARTHUR.

'By WM. H. CROOK, *Secretary.*

'S. W. CLARK, Recorder of the General Land Office.

'Recorded, Vol. 6, Pages 1, 2 and 3.'

8. THE REVOCABLE LICENSES GRANTED BY THE UNITED STATES WAR DEPARTMENT TO THE CHANDLER-DUNBAR WATER-POWER COMPANY OR TO ITS LESSEE, THE EDISON SAULT ELECTRIC COMPANY.

They are seven in number and read as follows by order of dates:

Revocable License, No 1 (March 14, 1889).

The Edison Sault Light and Power Company, of Sault Ste. Marie, a corporation existing under the laws of the state of Michigan, is hereby granted a license, revocable

at will by the Secretary of War, to erect and maintain a dam on the rapids of the St. Marys river, between the mainland and Island No. 3, and within the limits of the lines marked 'Proposed Embankment Dam,' on the map hereto attached and made a part of this instrument, upon the following provisions and conditions:

1. That said dam shall be so constructed as not to interfere with private rights or public interests and improvements.

2. That the engineer officers of the United States Army, in charge of the district within which the dam is to be constructed may supervise its construction as far as may be necessary, to secure the compliance with the conditions herein obtained.

3. That any sum which may have to be expended, after revocation of this license, in putting any premises or property, hereby authorized to be occupied or used, in as good condition for use by the United States as it is this date, shall be repaid by said Edison Sault Light and Power Company on demand.

Witness my hand this fourteenth day of March, 1889.

(Signed) REDFIELD PROCTER,
Secretary of War.

This license, with the terms, provisions and conditions set out therein, is hereby accepted this fifth day of March, 1889.

THE EDISON SAULT LIGHT AND POWER COMPANY,
MR. C. E. AINSWORTH, *President.*
E. S. B. SUTTON, *Secretary.*

Signed in presence of J. H. Goff, W. Chandler, Chas. G. Clarke, Thomas J. Martin and Frank Perry, all of Sault Ste. Marie, Michigan.

Revocable License, No. 2 (August 8, 1892).

The Edison Sault Electric Company is hereby granted a license, revocable at will by the Secretary of War, to construct and to maintain an embankment dam in the St. Marys rapids, adjacent to its property at Sault Ste. Marie, Michigan, and extending into the river to a point half the distance from the shore to Islands Nos. 1 and 2, in accordance with the general plan shown on the map hereto attached, upon the following provisions and conditions:

1. That no portion of the dam, except that extending to Island No. 3, shall be so constructed as to extend further than midway between the company's property and islands Nos. 1 and 2.

2. That the engineers officers of the United States Army, in charge of the district within which the dam is to be built, may supervise its construction as far as may be necessary to secure compliance with the conditions of this license.

3. That any sum which may have to be expended, after revocation of this license, in putting any premises or property, hereby authorized to be occupied or used, in as good condition for use by the United States as it is at this date, shall be repaid by said Edison Sault Electric Company on demand.

Witness my hand this nineteenth day of August, 1892.

(Signed) L. A. GRANT,
Acting Secretary of War.

This license, with the terms, provisions and conditions set out therein, is hereby accepted this eighth day of August, 1892.

(Signed) EDISON SAULT ELECTRIC COMPANY,
BY HARRIS T. DUNBAR, *President.*

Signed in presence of F. E. Dunbar.

Engineer's Department, 1892, No. 3390.

Revocable License, No. 3 (July 8, 1893).

The Edison Sault Electric Company is hereby granted a license, revocable at will by the Secretary of War, to enter upon the land of the United States, forming part of the St. Marys Falls Canal grounds, at Sault Ste. Marie, Michigan, and to widen the tail-race now in use by the said company, between its power house and Island No. 3, from 15 to 25 feet, and to extend the small embankment dam running down from the Island No. 3 to Island No. 4, all as shown on the attached plat of a part of the canal grounds, the red lines on the plat showing the extent of the proposed work, upon the following provisions and conditions:—

1. That unless sooner revoked, this license shall expire at the end of five years from the date of its execution.

2. That the excavated material shall not be removed, but it shall be deposited back (south) of its present position.

3. That any sum which may have to be expended, after revocation of this license, in putting any premises or property, hereby authorized to be occupied or used, in as good condition for use by the United States as it is at this date, shall be repaid by the said Edison Sault Electric Company on demand.

Witness my hand this sixth day of July, 1893.

(Signed) L. A. GRANT,
Acting Secretary of War.

Office, Chief of Engineers, United States of America, Inclosure 2 of 3081.
Received, Office Chief of Engineers, July 8, 1893.

Revocable License, No. 4 (April 4, 1902).

Whereas, by revocable license, dated August 13, 1892, the Acting Secretary of War gave unto the Edison Sault Electric Company permission to construct and maintain an embankment dam in the St. Marys River rapids, adjacent to its property at Sault Ste. Marie, Michigan, and extending into the river to a point half the distance from the shore to Islands Nos. 1 and 2, in accordance with the general plan shown on the map thereto attached, and subject to the conditions therein contained;

And whereas, said Edison Sault Electric Company has now applied to the Secretary of War for a modification of said license of August 13, 1892, so as to permit the construction of the proposed new power station indicated at A-A1 on the attached blue-print, and to extend the present embankment, as indicated by the heavy white line from *a* to *c*, and to remove the red lined section *a, b;* also to make a new tail-race outside of Island No. 3, at said place, all as shown on the attached blue print;

Now, therefore, this is to certify that the Secretary of War hereby modifies said revocable licenses of August 13, 1892, so as to permit the construction of a proposed new power station, indicated at A-A1 on the attached blue print, and to extend the present embankment, as indicated by the heavy white line from *a* to *b*, and to remove the red line section *a, b*, shown on said blue print; also gives unto said company permission to make a new tail-race outside of Island No. 3, at said place, as shown on said blue print, subject to the following conditions:—

1. That this permission shall not be construed as authorizing any invasion or impairment of the riparian rights of any other person or corporation, and the right to withdraw the permission for use of this tail race whenever the interests of the government so requires, is expressly reserved.

2. That the work of cleaning and deepening the tail race shall conform to the plan outlined in the company's letter of March 23, 1901, a copy of which is hereto attached.

3. That as soon as the new tail-race is ready for use said company shall abandon the tail-race now used on the inside of Island No. 3, and relinguish to the United States all rights of the company between said island and the shore.

4. That the work herein permitted to be done shall be subject to the supervision and approval of the Engineer Officer of the United States Army in charge of the locality.

5. That any sum which may have to be expended, after revocation of this license, in putting any premises or property, hereby authorized to be occupied or used, in as good condition for use by the United States as it is at this date, shall be repaid by said Edison Sault Electric Company on demand.

Witness my hand this fourth day of April, 1901.

(Signed) ELIHU ROOT,
Secretary of War.

Office, Chief of Engineers, War Department, April 6, 1901, No. 38452.

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14

The following letter is annexted to the preceding license, and forms part of the official records of the War Department in Washington:—

THE SHOREHAM,
WASHINGTON, D.C., March 23, 1901.

Honourable SECRETARY OF WAR, Washington, D.C.

SIR,—In addition to the plan of the proposed tail-race, for which we are making application to improve, and to which this is attached and made a part.

We would state that it is our desire to clear out the driftwood, loose boulders, rock and such other material as may be encountered, to a depth of not exceeding 10 feet below the present surface; this at a point where the property of our company on the east intersects with that of the government, and on the lines indicated by the plan hrein referred to.

From this as a grade starting point, we wish to extend the improvement downstream on the lines indicated by our plan, gradually decreasing the depth of excavation as the slope of the bottom requires, until a plane is reached when no further excavation would be required, the natural surface and improved channel being on the same grade, at a point not lower down the channel than the westerly extremity of Island No. 5.

It is not intended or requested on our part to make any permanent embankments on either side of the excavation so applied for unless required by the governmet.

It is not expected on our part that after completing the improvements herein contemplated that we will change the volume of flow of water on the government property, which we now seek to utilize. It is hoped on our part to pass the same amount of water over the same areas as would naturally flow, concentrating its fall at a given point and utilizing it for commercial purposes, instead of as at present the fall is diffused over a long distance and goes to waste.

Very respectfully,

EDISON SAULT ELECTRIC.

Revocable License, No. 5 (June 9, 1902).

The Chandler-Dunbar Water-Power Company, Sault Ste. Marie, Michigan, is hereby granted a license, revocable at will by the Secretary of War, to occupy, for the purposes of the extension of said company's dock, a small area of land belonging to the United States government at Sault Ste. Marie, Michigan, as shown by red lines on the attached drawing, upon the following provisions and conditions:

1. That the United States shall have a perpetual right to the free use of said dock in the future, so far as needed for government work connected with future canal operations and improvements, as Sault Ste. Marie, Michigan.

2. That any sum which may have to be expended, after revocation of this license, in putting any premises or property, hereby authorized to be occupied or used, in as good condition for use by the United States as it is at this date, shall be repaid by said Chandler-Dunbar Water-Power Company on demand.

Witness my hand this ninth day of June, 1902.

(Signed) WM. CARY SANGER,
Assistant Secretary of War.

Office, Chief of Engineers, War Department, June 10, 1902, No. 42721.

3

Revocable License, No. 6 (March 10, 1904).

Whereas, by revocable license, dated August 13, 1892, the Acting Secretary of War gave unto The Edison Sault Electric Company permission to construct and maintain an embankment dam, in the St. Marys river rapids, adjacent to its property at Sault Ste. Marie, Michigan, and extending into the river to a point half the distance from the shore to Islands Nos. 1 and 2, in accordance with the general plan shown on map hereto attached, and subject to the conditions therein contained;

And whereas, by an instrument dated April 4, 1901, the Secretary of War modified said revocable license of August 13, 1892, so as to permit the construction of a proposed new power station, indicated at A-A^1 on the blue print hereto attached, and to extend the embankment, as indicated by the heavy white line from *a* to *c,* and to remove the red line section *a b,* as shown on said blue print; and also gave unto said company permission to make a new tail race outside of Island No. 3, at said place, as shown on said blue print, subject to the conditions therein contained;

And whereas, said Edison Sault Electric Company has now applied to the Secretary of War for a modification of said permit of April 4, 1901, as hereinafter specified, so as to allow it to build further out into the rapids of the St. Marys river, in front of the shore properties owned or leased by said company;

Now, therefore, this is to certify that, in accordance with the recommendation of the Chief of Engineers, the Secretary of War hereby modifies said instrument of April 4, 1901, so as to permit said company to build further out into the rapids of the St. Marys river, at said place; the work herein authorized being shown on the attached blue print, and specifically described by reference thereto, as follows:

1. The removal of the wall and buildings (abB), coloured red.

2. The substitution of a somewhat larger power-house (EE) and a longer wall (a d), coloured yellow, in place of the already authorized power-house (AA^1) and wall (ac^1), coloured white.

3. The construction of a wider tail-race (G. G^1) below the power-house, of width suited to the latter, in lieu of the old tail-race (f f^1).

These modifications are made on the following conditions:

1. That this permission shall not be construed as authorizing any invasion or impairment of the riparian rights of any other person or corporation, and the right to withdraw the permission for use of this tail-race whenever the interests of the government so require, is expressly reserved.

2. That the work of clearing and deepening the tail-race shall conform to the plan outlined in said company's letter of March 23, 1901, a copy of which is hereto attached.

3. That as soon as the new tail-race is ready for use, said company shall abandon the tail-race now used on the inside of Island No. 3, and relinquish to the United States all rights of the company between said islands and the shore.

4. That the work herein permitted to be done shall be subject to the supervision and approval of the engineer officer of the United States Army in charge of the locality.

5. That any sum which may have to be expended, after revocation of this license, in putting any premises or property, hereby authorized to be occupied or used, in as good condition for use by the United States as it is at this date, shall be repaid by said Edison Sault Electric Company on demand.

6. That the area now occupied by the old building and old tail-race shall be abandoned to the United States, as soon as the new buildings and new tail-race can reasonably be completed and ready for service.

Witness my hand this tenth day of March, 1904.

(Signed) WM. CARY SANGER,
Acting Secretary of War.

Office, Chief of Engineers, War Department, March 13, 1904, No. 38452.

29

The following letter is annexed to the present patent, and forms part of the official records of the War Department in Washington:—

THE SHOREHAM,
WASHINGTON, D.C., March 23, 1901.

Honourable SECRETARY OF WAR, Washington, D.C.

SIR,—In addition to the plan of the proposed tail-race, for which we are making application to improve, and to which this is attached and made a part,

We would state that it is our desire to clear out the driftwood, loose boulders, rock and such other material as may be encountered, to a depth of not exceeding 10 feet below the present surface; this at a point where the property of our company on the east intersects with that of the government, and on the lines indicated by the plan herein referred to.

From this as a grade starting point, we wish to extend the improvement down-stream on the lines indicated by our plan, gradually decreasing the depth of excavation as the slope of the bottom requires, until a plane is reached where no further excavation would require, the natural surface and improved channel being on the same grade not lower down the channel than the westerly extremity of Island No. 5.

It is not intended or requested on our part to make any permanent embankment on either side of the excavation so applied for unless required by the government.

It is not expected on our part, after contemplating the improvements herein contemplated, that we will change the volume or flow of water over the government property which we now seek to utilize. It is hoped on our part to pass the same amount of water over the same area as would naturally flow, concentrating its fall at a given point and utilizing it for commercial purposes, instead of as at present the fall is diffused over a long distance and goes to waste.

Very respectfully,
EDISON SAULT ELECTRIC COMPANY.

WAR DEPARTMENT,
WASHINGTON, July 30, 1903.

GENTLEMEN,—Referring to previous correspondence concerning the suspension of the permission heretofore granted the Edison Sault Electric Company, to build its embankment dam, power house and other works farther out into the St. Marys river rapids at Sault Ste. Marie, Michigan, I beg to inform you that I have this day executed an instrument modifying the permit of March 10, 1903, granting the permission above referred to, so as to have thereto the following conditions:—

'That no part of the proposed embankment dam, power house and other works shall be so constructed as to extend farther into the river than one-half of the distance from shore to the nearer island of the Islands Nos. 1 and 2.

'That the present rock bottom in the river at the head of the rapids and head of the head race shall not be cut away or otherwise lowered or deepened.'

Very respectfully,

(Signed) ELIHU ROOT,

Secretary of War.

Messrs. Shaw, Warren, Cady & Oakes,
Attorneys for St. Marys Power Company, Detroit, Mich.

OFFICE OF CHIEF OF ENGINEERS,
December 23, 1903.

NOTE:—

Paragraph 7 of the notice of July 30, 1903, modified as follows: (See 17th ind. on 46393, and ind. of Acting Secretary of War, October 31, 1903, on 46393), viz.:—

'That no part of the proposed embankment dam, power house and other works shall be constructed above a line extending from the foot of Island No. 2, at right angles to the general course of the channel between said island and the shore, so as to extend farther into the river than one half of the distance from the shore to the nearer island of Islands Nos. 1 and 2; and that around the foot of Island No. 2, such construction shall leave at all stages of water a free water flow, at least equal in total cross section and volume to that now passing between Islands Nos. 1 and 2, and the nearest parts of the embankment of the August 13, 1892, permit.'

Revocable License, No. 7 (May 8, 1905).

Whereas, by instrument dated March 10, 1903, as subsequently modified by instrument dated July 30, 1903, permission was granted by the Secretary of War to the Edison Sault Electric Company, to construct an embankment dam, power house and accessory works in the St. Marys river at Sault Ste. Marie, Michigan, as specifically described in said instrument of March 10, 1903, and shown on the map attached thereto; such permission, however, being subject to the conditions set forth in said instrument of March 10, 1903, as modified by said instrument of July 30, 1903;

And whereas, application is now made by said Edison Sault Electric Company for permission to make certain alterations in the proposed work and certain additional constructions in connection therewith; and the Chief of Engineers, United States Army, has recommended that permission be given to the extent hereinafter set forth;

Now, therefore, this is to certify that the Secretary of War hereby gives the said Edison Sault Electric Company permission for the construction of a temporary sand-bag cofferdam, as indicated in red on the attached blue print, and described by reference thereto as extending from the point G to Island No. 1, between Islands Nos. 1 and 2, and from Island No. 2 to the point F.

This permission, however, is given upon the following conditions:—

1. That the said temporary sand-bag cofferdam shall be entirely removed by said company not later than the close of navigation of the calendar year, 1905.

2. That the work herein permitted and required to be done shall be subject to the supervision and approval of the engineer officer of the United States Army in charge of the locality.

Witness my hand this eighth day of May, 1905.

(Signed) WM. H. TAFT,

Secretary of War.

Office of Chief Engineer, War Department, May 15, 1905, No. 38452.

The United States government has entered a suit in the Circuit Court of the United States for the Western District of Michigan, Northern Division, against the Chandler-Dunbar Water Power Company, claiming the ownership of Island No. 1 and Island No. 2, and asking that the letters patent granted them in 1883 be cancelled and declared void. The suit was commenced by the United States, under the direction of the Attorney-General, on September 2, 1903. All testimony and records and documentary evidence have been taken, and the case was heard last spring, and judgment was given on July 20 last, by Mr. Justice P. Wanty, dismissing the action of the United States government and maintaining the Chandler-Dunbar Water Power Company in their act of ownership to Islands Nos. 1 and 2.

The United States, as complainant, claims that it is the owner of Islands Nos. 1 and 2, situated in the rapids of the Straits of St. Mary, north of the ship canal and locks belonging to it; that said islands are situated in public waters, to which no riparian rights can be attached, and that the continued undisturbed ownership and possession thereof is essential to the present and future operation and enlargement of said works in aid of commerce, and also essential to enable the United States to fulfil its international obligations to Great Britain, by maintaining the communicating waterways of the Great Lakes as public waters.

The defendant denies the public character of the waters in which said islands are situated, and asserts that the ownership of said islands attaches to the ownership of the adjacent shore title on the American side. The defendant also denies that said islands are needed by the United States for public purposes, and denies that their ownership and possession are essential to the performance of the international obligations of complainant.

The defendant claims to be the owner of said islands by virtue of a patent issued on December 15, 1883, to its grantor, William Chandler, asserting that said title attaches also to said islands by virtue of its alleged riparian ownership.

The complainant claims that said islands, together with a quantity of land on the south shore of the straits, on a part of which a ship canal and locks are constructed and in operation, have been reserved since the year 1882, and at any rate since April 3 and September 2, 1847, for public purposes.

The defendant, while admitting such reservation in 1847, claims that said reservation has been released:

(*a*) By order of the President on December 9, 1852;

(*b*) By the abandonment of an Indian right of occupancy by a treaty, proclaimed April 24, 1856;

(*c*) By the Act of September 26, 1850, and the operations thereunder, such operations including the survey of the mainland at Sault Ste. Marie, by Thomas Whepley, in 1854 and 1855.

The complainant alleges that the tract patented to Chandler was not included in the Whepley survey and was never included in any other survey of the public lands, and that, therefore, the land was not subject to be taken by location with Porterfield Scrip, which is the basis of the Chandler title, under the very terms of the Act of Congress authorizing the use of such scrip.

The defendant alleges that this suit is not brought in good faith by the United States, but that its object, instead of being the assertion of the rights and duties set out in complainant's bill, is to assist a private corporation, the Michigan Lake Superior Power Company, to divert water from flowing past the land covered by defendant's alleged title.

The complainant insists that this suit is brought in good faith, for the objects and purposes set out in its bill.

The defendant also relies upon the Statute of Limitations of March 3, 1891, which provides that suit by the United States to vacate and annul any patent theretofore issued, shall only be brought within five years from said date.

The complainant insists that the patent issued to Chandler in 1883 was not voidable, but absolutely void, because the land embraced therein, being in a state of reserva-

tion, was not subject to disposal under the public land laws of the United States, and that a void title is not within the intent of said Statute of Limiations; and complainant insists, further, that said Statute of Limitations does not apply, because said title is also void for the reason that the land covered by said patent has never been surveyed into legal subdivisions, or at all, and was not, therefore, subject to a location by Porterfield scrip.

The defendant also alleges that the complainant is estopped by its dealings with the defendant and by its laches to deny the title of defendant to the upland alleged to be embraced in the patent to defendant's grantor.

As above stated, Judge Wanty maintained the plea of the Chandler-Dunbar Water-Power Company in the Circuit Court of the United States for the western district of Michigan, northern division. The Attorney General has appealed from that judgment to a higher court, and the question has not yet been argued.

9. THE CONSOLIDATED LAKE SUPERIOR POWER COMPANY.

On Thursday the committee again embarked on board the United States government steamer *Alfred Noble,* and went to the Canadian side to visit the plants of the Consolidated Lake Superior Power Company. This company was incorporated under the Revised Statutes of Ontario, chapter 164, as the Sault Ste. Marie Water, Gas and Light Company, on June 30, 1888. By chapter 88, of the Ontario statutes, 1889, the company's name was changed to 'The Ontario Water, Light and Power Company.' By section 4 of this Act, the company obtained the power to build dams across the island channels or rapids of the St. Marys river or of any branch within the province of Ontario, and also to conduct water from the said river and the various branches thereof for hydraulic purposes; also to make flumes, canals or other works to secure the necessary supply of water for their works. The provisions of the section were to be exercised only with the consent of the Crown or the individuals affected. The company was also authorized to sell, lease or otherwise dispose of surplus water from their dams, flumes or canals. By the Ontario Act of 1890, chapter 135, the corporation of Sault Ste. Marie was authorized to take stock in the Ontario and Sault Ste. Marie Water, Light and Power Company, and an agreement with this view was ratified and is annexed to chapter 135, above described.

By the Ontario Act of 1895, the name of the company was changed into 'The Lake Superior Power Company,' all rights, powers and privileges to be enjoyed as theretofore granted. The St. Marys island, containing an area of 170 acres, was part of the military lands, expressly vested in the Crown for the purposes of the province of Canada by the Act 19 Vic., chapter 45, section 6 (1856). The northerly portion, comprising 10·10 acres of St. Marys island, which belonged to the Dominion as ordnance lands, was granted by way of exchange of properties to the Lake Superior Power Company by Dominion letters patent, dated March 19, 1896. They covered the said parcel of land and land covered with water, being a portion of St. Marys island and the adjacent waters, and reserved the free use of all navigable waters that might thereafter be found on, under, or flowing through, or upon any part of the land. These letters patent read as follows:—

'Special grant by Her Majesty the Queen to the Lake Superior Power Company, of parcel or tract of land and land covered by water, being a portion of the St. Marys island and the adjacent waters, being in the town of Sault Ste. Marie, in the district of Algoma, Ontario, dated March 18, 1896, recorded March 19, 1896.

'J. POPE,
'Acting Deputy Registrar General of Canada.

'JOHN J. McGEE,
'Deputy Governor.

CANADA:

'Victoria, by the Grace of God, of the
'United Kingdom of Great Britain and
'Ireland, Queen, Defender of the Faith.
'etc., etc., etc.

'To all these presents shall come, Greeting:

'Whereas the lands hereinafter described have been required for a public work of Canada, and the same are no longer required for such public work;

'And whereas, pursuant to the Statutes and under the authority of our Governor in Council in that behalf, we have agreed to grant the said lands to the Lake Superior Power Company, hereinafter called "the said company," in exchange for certain other lands, situated at the town of Sault Ste. Marie, in the province of Ontario, and the said last mentioned lands have been duly conveyed to us by 'the said company."

Now know ye, that in consideration of the premises, we do grant, convey and assure unto "the said company" all and singular that certain parcel or tract of land and land covered by water, being a portion of St. Marys Island and the adjacent waters, situated, lying and being in the town of Sault Ste. Marie, in the District of Algoma, and province of Ontario, and which may be more particularly known and described as that portion of St. Marys Island and adjacent waters, the property of the government of the Dominion of Canada, lying to the north of a straight line to be hereinafter described, and bounded on the west by the southerly production of the easterly limit of West street, and on the east by the Laird & Henderson mill site (a tract of 12 acres, granted by Letters Patent, dated June 7, 1877, to John Laird and Jonathan Henderson); the above mentioned straight line is drawn from a point on the southerly production of the easterly limit of West street, distant one thousand one hundred and forty-nine and four-tenths (1,149 4-10) feet, measured southerly along said production from the southerly limit of Portage street to a point on the southerly production of the westerly limit of Andrew street, distant nine hundred and thirty-six and four-tenths (936.4-10) feet, measured southerly along said production from the said southerly limit of Portage street; the above described parcel contains by admeasurement ten and ten hundredths (10.10) acres, be the same more or less, and is shown coloured pink on a plan hereto annexed, saving, excepting and reserving unto us, our successors, and assigns the free uses, passage and enjoyment of, in, over and upon all navigable waters that shall or may be hereafter found on, or under, or be flowing through, or upon any part of the said parcel or tract of land hereby granted as aforesaid.

'To have and to hold the said parcel or tract of land unto "the said company," its successors and assigns forever.

'Given under the Great Seal of Canada:

'Witness: John Joseph McGee, Esquire, Deputy of Our Right Trusty and Right Well-Beloved Cousin and Councillor the Right Honourable Sir John Campbell Hamilton Gordon, Earl of Aberdeen, Viscount Formartine, Baron Haddo, Methlic, Traves and Kellie, in the Peerage of Scotland; Viscount Gordon of Aberdeen, County of Aberdeen, in the Peerage of the United Kingdom, Baronet of Nova Scotia, Knight Grand Cross of our Most Distinguished Order of Saint Michael and Saint George, etc., etc., Governor General of Canada.

'(E. L. Newcombe, Deputy of the Minister of Justice, Canada.)

'At our Government House, in our City of Ottawa, this eighteenth day of March, in the year of Our Lord, one thousand eight hundred and ninety-six, and in the fifty-ninth year of our reign.

'JOHN HAGGART,
'*Minister of Railways and Canals.*

'By Command:
'JOSEPH POPE,
'Acting Under Secretary of State.'

The Lake Superior Power Company are at present the owners of the Laird & Henderson mill site, which comprised a certain area of water and islands therein north of St. Marys island. This mill site had been granted by Letters Patent from the province of Ontario on June 7, 1877, to John Laird and Jonathan Henderson. Said Letters Patent read as follows:—

'D. A. MACDONALD,

'PROVINCE OF ONTARIO,'

'Victoria, by the Grace of God of the
'United Kingdom of Great Britain and
'Ireland, Queen, Defender of the Faith.

'To all to which these presents shall come, Greeting:

'Whereas, John Laird, of the town of Sault Ste. Marie in the District of Algoma, miller, and Jonathan Henderson, of the same place, merchant, have contracted and agreed for the absolute purchase of the lands and tenements hereinafter mentioned and described at and for the price of or the sum of twelve dollars of lawful money of Canada, and of which lands we are seized in right of our Crown.

'Now know ye, that in consideration of the said sum of twelve dollars, well and truly paid to our use, at or before the sealing of these, our Letters Patent, we have granted, sold, aliened, converted and assured, and by these presents do grant, sell, alien, convey and assure unto the said John Laird and Jonathan Henderson, their heirs and assigns forever.

'All that parcel or tract of land and land covered with water, situate, lying and being at the town of Sault Ste. Marie in the District of Algoma, in the province of Ontario, containing by admeasurement twelve acres, be there more or less, which said parcel or tract of land may be otherwise known as follows, that is to say: Being composed of a mill site at the town of Sault Ste. Marie, in front of the township of Awenge, as shown by the green colour on a plan by provincial land surveyor, Isaac Traynor, dated May 5, 1877, of record in the Department of Crown Lands, a copy of part of which plan is attached to these Letters Patent, together with the right of way one chain wide from the said mill site to the Korah road, as shown on the said plan by the red colour.

'To have and to hold the said parcel or tract of land hereby granted, conveyed, assured unto the said John Laird and Jonathan Henderson, their heirs and assigns for ever, saving, excepting, and reserving, nevertheless, unto us, our heirs and successors, the free uses, passage and enjoyment of, in, over and upon all navigable waters that shall or may be hereafter found on, or under, or be flowing through, or upon any part of the said parcel or tract of land hereby granted as aforesaid.

'Given under the Great Seal of our province of Ontario.

'Witness, the Honourable Donald Alexander MacDonald, Lieutenant Governor of our province of Ontario;

'At Toronto, this seventh day of June in the year of Our Lord, one thousand eight hundred and seventy-seven, and in the fortieth year of our reign.

'By command of the Lieutenant-Governor in council.

'ARTHUR S. HARDY, C.L.S.,
'Secretary.

'THOMAS H. JOHNSTON,
'Assistant Commissioner of Crown Lands.

'Ref. 41,125; Toronto, 37,551; F.D.W.F.'

The Lake Superior Power Company also acquired from H. C. Hamilton and his wife a piece of land adjacent to the Laird and Henderson mill site, by a deed, executed

on June 30, 1890, and duly registered at the registry office of the district of Algoma, in the town of Sault Ste. Marie, Ontario.

The present industrial activity and development at the Soo may be said to date from October, 1894, when an agreement was entered into between Francis H. Clergue, of New York city, and Edward V. Douglas, of Philadelphia, for the purchase of the Ontario and Sault Ste. Marie Water, Light and Power Company. This company was originally formed for the development of power from the falls of the St. Marys river on the Canadian side, but after doing a certain amount of work, including the partial construction of a power canal, found itself financially embarrassed and unable to properly proceed with the completion of the work so that a revenue could be derived from it. The town of Sault Ste. Marie was practically the owner of the company, only a part of the capital stock being held by individuals. The company, in addition to their power privileges, were also the owners of franchises from the town of Sault Ste. Marie, for electric lighting, water and street railway privileges. The transactions of Messrs. Clergue and Douglas are a matter of public record, and can be found in chapter 119 of the statutes of Ontario for the year 1895. Under this Act, which was assented to April 16, 1895, Mr. Clergue and his associates took over the complete property and franchises of the Ontario and Sault Ste. Marie Water, Light and Power Company. The name of the company at the same time being changed to the Lake Superior Power Company.

The Tagona Water and Light Company had already been organized in October of 1894 by Messrs. Clergue and Douglass, and its incorporation was confirmed by the same Act above referred to. This company was assigned the water and lighting privileges in the town of Sault Ste. Marie, and subsequently installed and are now operating an up-to-date water and lighting system.

The new company, viz.: The Lake Superior Power Company, which was composed of Mr. Clergue and his associates, immediately commenced the development of water-power on the Canadian side of the St. Marys falls. They utilized, as far as possible, the old power canal, but increased its size to provide for much larger development of power, and constructed a suitable power-house for the development of electrical power from the water wheels, in which the Tagona Water and Light Company were provided with a pumping and lighting station.

The Sault Ste. Marie Pulp and Power Company was also provided with mill accommodation in the same group of buildings. These buildings are of solid stone construction and of modern type, Lake Superior limestone being used, quarried from the company's own property. This company was incorporated in 1895, and was an allied company of the two others above mentioned, the promoters being the same. It was first planned to make mechanically ground wood pulp under the wet process, but, after manufacturing wet pulp for a time the mill was changed to make dry pulp, and has been operating under this process ever since. The manufacture of pulp marked the commencement of Sault Ste. Marie as a manufacturing town, and consequently a new area of activity.

The promoters of the company mentioned above, realizing the vast natural resources of the district, rapidly proceeded with the inauguration and incorporation of various new industrial and transportation companies, a brief description of which follows. The town and district naturally profited greatly from these developments, entailing as they did the expenditure of vast sums of money for labour and material in their midst.

The Lake Superior Power Company did not confine itself to the development of power alone, but early began the exploration of the surrounding districts for minerals, and met with such success, with respect to iron and nickel finds, as to warrant the construction of plants for the treatment of these ores. Blast furnaces for the smelting of iron ores and a steel rail mill were built, together with operatives' houses; and for the utilization of the hardwoods of the district contiguous to the Soo a charcoal by-product plant and kilns were constructed. The charcoal from these plants was used in one of the blast furnaces. A reduction work was built for the treatment of nickel ore, one of the features of this process being the saving of the sulphurous gas for use

in the manufacture of sulphite pulp. This company was meanwhile successfully operating the Helen Iron mine and the Gertrude Nickel mine.

The blast furnaces, steel plant and charcoal plant were originally constructed by the Lake Superior Power Company, but in the year 1901 were turned over to the Algoma Steel Company.

The Lake Superior Power Company had also become the owner by purchase, of large areas of real estate in and around Sault Ste. Marie, and particularly on the river front, where it built docks, and otherwise held the land to provide for the expansion of itself and the other allied companies.

The Sault Ste. Marie Pulp and Paper Company built in addition to its ground wood pulp mill a large and handsome sulphite mill, and also commenced the manufacture of building paper and tar paper.

With so much construction and operation going on it was soon found necessary to have a workshop of sufficient capacity to take care of all repairs and a great part of new work. This was started on a comparatively small scale, but the demands upon it were so large that it was later found essential to extend it. This was done from time to time, until finally the Algoma Iron Works was formed, and a splendid modern machine shop with galleries for small work constructed, modern machinery sufficient to do the repairs of all the different departments of the various companies was installed. The blacksmith and tin shops were also added, and an up-to-date foundry for casting iron, brass and copper was built. These are all operating at the present time. This concern not only does repairs for the various companies, but it also handles a great deal of outside work, including marine repairs, of which work it makes a specialty.

Railroad facilities were naturally required to provide for handling ores from the mines and forest products, as well as switching at the various plants, and the Algoma Central Railroad was incorporated August 11, 1901, to serve this purpose, and in addition to a railroad of 120 miles, it owns and operates a fleet of vessels trading out of Sault Ste. Marie, consisting of four passenger boats and six freight boats. As part of the transportation plant of the company, the Manitoulin and North Shore Railway was incorporated July 7, 1901. Both of these railroads were the recipients of land grants from the Ontario government, the conditions of which can be obtained in the statutes.

The construction of these transportation lines was carried on by the Algoma Commercial Company, formed for this purpose, as well as for the purpose of carrying on mining and lumbering operations, the latter operation including the supply of pulp wood through the mill of the pulp company, and that of saw logs and veneer logs to its own saw and veneer mills at the Soo, the saw mill having a daily capacity of 100,000 feet, and the veneer mill being the largest in Canada. This company also built a car building plant at the Soo with a capacity of eight flats or four box cars per day. It further made extensive explorations for minerals, including iron, nickel and gold. The company owns at present the Josephine mine, which is a bessemer iron mine, the Grace gold mine and the Elsie nickel mine.

The right to operate street car lines had also been granted to the companies under the original franchise, and the International Transit Company was formed for the purpose of operating electric street car lines in the town of Sault Ste. Marie, Ontario, and also a ferry on St. Marys river between the two Soos. An up-to-date electric railroad was constructed and is at present operating. The equipment of the company also includes two ferries, the 'Algoma' and the 'Fortune.' These are modern ferry boats and have sufficient capacity to easily handle the traffic.

In the year 1901, the various companies were consolidated under the ownership of the Consolidated Lake Superior Company. The individual companies were made subsidiary to this company in that the Consolidated was a holding company and owned the stock of the various companies, the companies, however, preserving in every way their corporate existence. The subsidiary companies were reorganized in

the year 1904 under the title of the Lake Superior Corporation, which at present is the holding company.

Before the advent of these companies the town of Sault Ste. Marie had a population of 2,000. There were no factories of any kind in the place, and the community did a very small business except a certain amount of trading. The construction of the large factories of the allied companies immediately gave a great impetus to the town. The population has steadily increased, until at the present time it is estimated that the population is 15,000. The works and properties of the allied companies cover an acreage of 1,600 and a total of about 4,000 men find employment. The town is in a prosperous condition, and is certain to become one of the great manufacturing centres of the country.

The following is a list of the various companies with the different plants operated by each, together with the number of men employed:—

Tagona Water and Light Company—

Municipal system of electric lighting and water supply; employs twenty men; eighty-eight miles of electric wire; twenty miles of water main.

Lake Superior Power Company—

Owners of the Canadian Power Plant; nickel reduction works, Gertrude nickel mine and smelter; brick plant; large acreage real estate; Helen iron mine; two hundred and twenty-five men employed.

Sault Ste. Marie Pulp and Paper Company—

Ground wood mill, 110 tons daily capacity; sulphite pulp mill—50 tons daily capacity; building paper and tar paper mill, 20 tons daily capacity; one hundred and seventy-five men employed.

Algoma Iron Works—

Large modern machine shop, blacksmith shop, tinsmith shop, pattern shop, brass, iron and copper foundry; employs one hundred and fifty men.

Algoma Steel Company—

Two blast furnaces, daily combined capacity 450 tons; steel plant, 600 tons steel rails daily capacity; charcoal retort plant, daily capacity 8,000 bushels charcoal, 1,600 gallons wood alcohol, 24,000 pounds gray acetate of lime; thirteen hundred men employed.

Algoma Central and Hudson Bay Railway Company—

One hundred and twenty miles of standard railroad under operation, fully equipped with modern rolling stock; steamship line consists of four passenger and six freight boats, also operates four docks; three hundred and fifty men employed.

Manitoulin and North Shore Railway Company—

Thirteen miles of standerd railroad under operation, fully equipped with modern rolling stock, operated between Sudbury and Gertrude mine; thirty men employed.

International Transit Company—

Operates standard electric street car line in the town of Sault Ste. Marie, Ontario, providing eight minute service; also operates ferry service between two Soos, owns two ferries; fifty men employed.

Algoma Commercial Company—

Operates saw mill, daily capacity 100,000 feet lumber; veneer mill, largest in Canada; car building plant, capacity eight flats or four box cars per day; large lumber operations, extensive mining property in districts around the Soo; employs eighteen hundred men.

The site of the power canal of the company is on certain streams between the islands originally existing in the rapids, and the intake is below the crest of the rapids from a natural bay in the river. The canal from the head-gates to the power

house is 2,200 feet long, and the tail-race from the power house to the dredged channel opposite the north and south docks of the Lake Superior Power Company, is about 1,000 feet long. The canal is trapesoidal in section, with an earth and rock bottom and earth banks, the canal sides of which are paved with riprap. It is about 220 feet wide at the water line and about 12½ feet deep at the head gates, changing gradually to a width of 85 feet and a depth of 15½ feet at the power house. The head gates, which are constructed of wood, are located about 70 feet west of the Canadian Pacific Railway where it crosses the power canal. The power is developed by 42-51 inch vertical turbines, and at mean head is about 15,000 horse-power at the turbine shafts. To develop additional power would require either the enlargement of the present canal or the construction of a new canal. The amount that could be developed depends upon the division of the flow of the river for utilization in United States and Canadian territory. The total flow of water, when all water wheels are running to their full capacity, is about 8,800 cubic feet per second, but the average flow is about 7,000 cubic feet per second.

The compensating works erected by the Lake Superior Power Company at the request of the United States War Department for the waters diverted through the canal of the Michigan Lake Superior Power Company on the American side, are located about 150 feet west of the centre line of the International Bridge, opposite spans Nos. 9 and 10, which are those nearest to the Canadian shore. They consist, as at present constructed, of an earth and rock fill dam opposite span No. 10, and a series of four stone and steel sluice gates opposite span No. 9. These gates leave a clean waterway opening each between stone and concrete piers of 52 feet 2½ inches, and the elevation of the sill of the gates is 591, or about 10½ feet below mean water level. The gates are counter-weighted and operated by hand by means of suitable trains of gears. The cost to date is about $267,000. The result accomplished by the compensating works with the gates closed is to reduce the flow through the rapids section by about 10,000 cubic feet per second at mean water level of 601·5 feet above mean tide water at New York city. As the gates have not been opened since construction, no data can be given as to the effect on flow under such a condition.

The Lake Superior Power Company claims to have constructed these compensating works under the authority given it by Acts of the legislature of the province of Ontario, and more particularly by section 4 of chapter 88, 52 Victoria, page 311 of the statutes of Ontario, which reads as follows:—

'After having acquired the land or property necessary for the carrying out of the works hereinafter mentioned, the company shall have the power to erect engines and employ hpdraulic power, and for such purposes to erect, construct and maintain a dam or dams across the inland channels or rapids of the St. Marys river, or of any branch thereof within the province of Ontario, and also to conduct water from the said river and the various branches thereof, and streams entering therein by canals or flumes to be made by the company at any place on the said rapids along the shores thereof for hydraulic purposes, and may also construct all necessary locks, piers, wharfs and other works on the canals, and may extend its work into, and take possession of the bed and beach of the said St. Marys river at the entrance of the canals or flumes, and for the foundation of the same and in their entire length, and at any point at which it may be found expedient to provide an outlet or outlets for the waters of the canals or flumes, or tail-races for water-powers taken from the said canals or flumes; the company may, for the purpose of survey, enter upon all lands on the line of the rapids, and from time to time may purchase, acquire, hold and enjoy all lands necessary for all the above purposes, and such ditches as may be necessary along the banks of the said river and streams, or for a road or either or both sides of the river branches, canals and flumes; the company may make all bridges, intersection, crossings whether through, under, or upon public or private roads, or any aqueduct or canal, and may erect all necessary dams, piers, wharfs, raceways, flumes, canals, or other works to secure the necessary supply of water for the works, and may construct and maintain such buildings, mills,

machinery, tramways, or railways and switches, wharfs and piers, dams, canals, raceways, and other conduits and works as may be requisite or may be deemed advantageous for carrying on the business of the said company; provided that it shall be responsible for all damages arising from inundations, if any, which its dams may cause, and all damages which may be caused by the carrying out or maintenance of any of its works; provided that nothing herein contained shall be held to confer the right of expropriating any land or interest therein, or any water or other privilege, and the provisions of this section, so far as they affect or may affect the rights or interests of the Crown or any individual, shall be taken advantage of and exercised only with the consent of the Crown or such individual in that behalf first obtained.'

The company claims, having been advised by its then solicitor and subsequently by the law officers of the government of Ontario, that the title to and jurisdiction over the lands under the water on the Canadian side of the river and all the riparian rights appertaining thereto, including those of water-power and hydraulic developments, were vested in the Crown, as represented by the province of Ontario, and in the legislature of the province of Ontario, respectively, and as the works were constructed at a point where it was believed the works did not interfere with navigation, counsel for the company at the time advised that no consent or permission from the Dominion government was necessary.

The solicitors of the company further stated that sometime after these works were constructed, and during a visit to Sault Ste. Marie of the Honourable Mr. Tarte, the then Minister of Public Works, and Mr. Coste, late Chief Engineer of the Public Works Department, and at the time employed by said department as supervising engineer of the works in course of construction at Port Colborne, Ont., the compensating works were inspected, and Mr. Coste suggested to Mr. F. H. Clergue, who was then president of the company, to apply to the Dominion government for approval of the works then constructed. The present directors of the Consolidated Lake Superior Power Company now understand from Mr. Clergue that, while not conceding that the action of the company at the time had not been regular and proper, he intended making the application suggested by Mr. Coste, his understanding being that the Minister of Public Works and Mr. Coste were satisfied with the construction, and that it would only be necessary to present a formal application under the statute to obtain the approval of the government subject, of course, to such reasonable regulations respecting the operation of the compensating works as the Minister of Public Works might see fit to impose. Owing to Mr. Clergue's retirement from the management of the company and the subsequent financial difficulties which befell the company, the matter was overlooked, and it only came to the attention of the directors of the present Consolidated Lake Superior Power Company when the sub-committee, in visiting the compensating works at the Soo, asked under what authority they had erected the same. The company has, through its solicitor, filed the formal plans and description of the site with the Public Works Department and with the registrar of deeds at Sault Ste. Marie. The company, while not conceding that its action has been in any way irregular, is quite prepared to accept the approval of the Dominion government, subject to such reasonable regulations as may be imposed respecting the operation of the compensating works.

The application should have been made from the start, in virtue of chapter 92 of the Revised Statutes of Canada, entitled 'An Act respecting certain works constructed in or over navigable waters.'

The engineers of the company report that the mean flow of the St. Marys river, including that through the rapids, power canals and ship canals, has been for the last 24 years about 73,600 cubic feet per second. They further report that it appears probable from the data which they have that the amount of power which can be developed from the flow of the rapids is, commercially speaking, governed not by the mean flow for a period of 24 years, but is that which can be developed from the mean flow from the rapids during years of low water. Under the best conditions that can be obtained with a very complete system of compensating works in the rapids, the flow

can probably be regulated so as to obtain a mean annual discharge in the years of low water of about 60,000 cubic feet per second.

10. THE CANADIAN SHIP CANAL.

The sub-committee, after having visited thoroughly all the plants and the works of the Consolidated Lake Superior Water-Power Company at Sault Ste. Marie, Ont., re-embarked on board the United States government steamship *Alfred Noble,* for a visit to the Canadian and American locks. Mr. J. C. Boyd, superintendent of the Canadian canal, accompanied the members of the sub-committee.

The length of the Canadian lock between the extreme ends of the entrance piers was, at the end of the season of 1904, 6,767 feet. During the season of navigation of 1905, another 800 feet has been added, which, when completed, will make a total length between the extreme ends of the entrance piers of the Canadian canal of 7,567 feet. There is only one lock of 900 x 60 feet, and it is of solid masonry. The depth of water on sills at lowest known water level is 20·3 inches. But the mean depth on the mitre sills is 22 feet. The total rise or lockage is 18 feet. The breadth of the canal at bottom is 141·08 and the breadth at surface of the water is 150 feet. This canal has been constructed through St. Marys island, on the north side of the rapids of the River St. Mary. The approaches to the canal are channels dredged through boulder shoals. The superstructure of the entrance piers is concrete. The gates and culvert valves are operated by electricity.

On October 13, 1904, the masts for day marks, from which fixed red lights were exhibited to mark the axis of the channel leading to the lower end of the Canadian canal, have been replaced by square, open skeleton, galvanized iron, unpainted towers with sloping sides, surmounted by square wooden lanterns, from which red lights are shown. Each light consists of a group of three incandescent electric lamps, which show strong beams in the line of range and over a small arc on each side thereof. On the channel side of each tower is a white, diamond-shaped day beacon of slatwork.

The front tower is 62 feet high and stands on the shore of the bay north of the entrance to the canal; its light is 63 feet above the water level below the canal and is visible 2·3 miles. The back tower, 72 feet high, is 1,150 feet north of the front light; its light is 78 feet above the river level and is visible 2·3 miles.

To enter the canal from below, the two lights are brought in range opposite the power-house, and kept thus until the axis of the canal is reached.

A railway drawbridge crosses the canal with a drawspan of about 144 feet 5 inches clear width between the canal walls, and 15 feet clear height above low water surface. The draw does not sound any whistle, and the closure of the draw is indicated by the waving of flags from the end of the bridge. Boats sound three whistles as a request for opening the draw if it be found closed. The bridge if closed at night, shows a red light.

The Canadian canal was built between the years 1888 and 1895, and the cost with approaches was $4,000,000.

The Department of Railways and Canals is making extensive improvements at the west or upper entrance of the canal. The eastern or lowest entrance has been deepened to 21·5 feet and to a width of 315 feet. The south pier was originally only 130 feet long. To this a concrete extension has been built 800 feet long, as above stated, making the total pier length 930 feet. This work was completed during the season of 1904.

During the season of 1905 the west or upper entrance has been deepened to a depth of 21·5 feet, and a width from 300 to 500 feet. The work has been in progress during all summer, under contract. The south pier at the west entrance was originally 1,265 feet in length. To this an extension 800 feet long is now being built, under contract. When this extension is completed the length of this pier will be 2,065 feet.

The first lock which was ever built on the Canadian side of the river was erected by the Hudson Bay Fur Company, in 1798. It was 38 feet long, 8·9 feet wide, with a lift of 9 feet. A towpath was made along the shore for oxen to pull the vessels and

canoes through the upper part of the rapids. This lock, excepting its timber floor and mitre sills, was destroyed in 1814 by United States troops from Mackinaw island, under command of Major Holmes. This lock has been restored and is to be seen near the general offices of the Consolidated Lake Superior Power Company. The Hudson Bay Fur Company also built a block house nearby to protect the locks from the attacks of Indians, and this structure has been restored, and is now one of the attractions of the Soo, for the double reason of its being what it is and because it was the first home of Francis H. Clergue in the Soo.

11. THE UNITED STATES SHIP CANAL.

After this lock, the first of real consequence was the state lock built on the American side by the state of Michigan, from 1853 to 1855. The canal was 1½ miles long, 64 feet wide at the bottom, 100 feet wide at the water surface and 13 feet deep.. There were two tandem locks of masonry, each 350 x 70 feet, having 11½ feet on the mitre sills and a lift of about 9 feet each. The locks were destroyed in 1888 by excavations for the present Poe lock. The Weitzel lock, 515 feet long, 80 feet wide in chamber, narrowing to 60 feet, at the gates, was built by the United States in the years 1870 to 1881. It was opened to navigation on September 1, 1881. The depth of water on mitre sills is 17 feet when the upper pool is 601·9 and the lower pool 584·4 feet above mean tide at New York. At the same time the depth of the canal was increased to 16 feet, the mean width to 160 feet, and the stone slope walls were replaced with timber piers, having a vertical face.

The Poe lock, 800 feet long, 100 feet wide, and having 22 feet of water on the sills, was built by the United States in the years 1887 to 1896. Hydraulic power is used for operating the two American locks, a pressure of 115 pounds per square inch being used for the Weitzel lock machinery and a pressure of about 200 pounds for the Poe lock machinery.

A railway drawbridge crosses the canal at a point about 3,000 feet above the head of the locks and about 300 feet above the movable dam. The clear width of draw opening between canal walls or piers is about 114 feet 5 inches, and the clear height of draw above the low water surface is about 15 feet. For passage of trains, the draw sounds one whistle, then closes, then sounds six whistles answered by two whistles from the waiting locomotive. After passage of train the draw is opened without further signal. Boats sound three whistles, as requested, for opening the draw if it be found closed. The bridge, if closed at night, shows a red light.

This bridge is continued across the St. Marys river at the head of the rapids by ten fixed spans, each of approximately 232 feet clear width and 15 feet clear height above water surface.

During the fiscal year ended June 30, 1904, 16,120 vessels passed through the Canadian and the two American locks. These vessels had a total registered tonnage of 24,364,138 tons, and they carried 31,546,106 tons of freight, and 37,695 passengers.

From the opening of the season of navigation of 1905, to November 30, inclusive, the statistics of the traffic through Canadian and American locks are as follows:—

Through the	American	locks,	15,614	vessel passages
" "	Canadian	"	5,495	" "
" "	American	"	9,507	lockages
" "	Canadian	"	3,910	"
" "	American	"	30,360,448	registered tonnage
" "	Canadian	"	5,403,906	" "
" "	American	"	37,641,105	tons of freight
" "	Canadian	"	5,359,368	" "
" "	American	"	28,315	passengers
" "	Canadian	"	25,741	"

These figures are from the opening of navigation to and including November 30, 1905.

The inspection of the ship canals ended the visit of the sub-committee to Sault Ste. Marie. Before separating a resolution was passed thanking the officers of the Corps of Engineers of the United States Army at Sault Ste. Marie, Michigan, and in particular Mr. L. P. Morrison, junior engineer in charge, for the great courtesy they had extended to the members of the sub-committee during their inspection of the conditions at the Soo.

Mr. Clinton left to return to his home in Buffalo, and the Canadian section of the sub-committee proceeded to Duluth via Port Arthur and Fort William, to make a preliminary investigation into the proposed works of the Minnesota Canal and Power Company. They left Friday, August 18, by the Canadian Pacific Railway Company's Steamship *Athabaska* at 3 p.m., and arrived at Port Arthur the following day at 12 noon, covering the distance between Sault Ste. Marie, Ontario, and Port Arthur in about twenty-two hours. The weather being exceptionally fine they had a splendid opportunity of examining thoroughly the conditions of the navigation on Lake Superior, and to obtain valuable information.

12. ST. MARYS RIVER WEST OF THE SHIP CANALS AND WHITEFISH BAY.

Shortly after having left the western end of the Canadian ship canal, the vessel passed near the Vidal shoal, situated at about 1½ miles above the rapids, between the United States and the Canadian channels. The removal of that shoal is of paramount necessity, as it is a source of great danger to vessels, particularly in foggy weather.

The route of the vessels off the Vidal shoal is in a direction southwest up to a point opposite Pointe au Chene, Ontario, where it turns in a direction northwest and follows it in a straight line to Ile Royale. At that point the route makes a little turn to the north, as far as Pie island and Thunder cape, thence proceeding again northwest to Port Arthur.

The ships enter Lake Superior properly at a point opposite Gros cap, Ontario, and Point Iroquois, Michigan. The distance between Sault Ste. Marie and Gros cap is about 30 miles.

13. LAKE SUPERIOR.

Lake Superior is the largest of the great lakes and also the largest area of fresh water on the globe. It is characterized by deep water and by high and rocky shores along a large portion of its coast. Compared with the other great lakes, its surface is more elevated above the sea; it is more irregular in outline, has deeper and colder water, more fog, more ice, a shorter season of navigation, less rain, about the same snowfall, and winds and seas not greatly different.

The prevailing storms on Lake Superior are from the northeast and northwest. During the summer months the perils of navigation are mainly those of fogs and squall winds, the latter occurring almost invariably in connection with thunder storms. In the spring and the autumn the lake is stormy and dangerous.

The length of the steamer track from Point Iroquois to the entrance of Duluth harbour is 383 miles; from Michipicotan harbour, Ontario, to Duluth, in a straight line, the distance is 350 miles. The breadth of the lake (longitude 86 degrees 45 minutes) is 160 miles. According to the report of the Deep Waterways Commission, published in 1897, the area of the water surface of Lake Superior is 38,800 square miles, but according to the calculations of the Canadian Geological Bureau the total area of the water surface, as divided by the boundary line between Canada and the United States is, in the United States 20,870 square miles and in Canada 11,760 square miles, making a total of 32,630 square miles. The total area of the basin is 80,400 square miles, and the area drained is 48,600 square miles. The total land shore area is 49,370 square miles, divided as follows by the boundary line between Canada and the United States: on the Canadian side 31,730 square miles, and on the United States side 17,640 square miles. The maximum depth recorded by the

United States Lake Survey officers is 1,012 feet. According to statistics furnished by the United States Weather Bureau, the average yearly rainfall on Lake Superior is 28 inches the mean surface of the lake above mean tide at New York city, during forty-five years, from 1860 to 1904, is 602.29 feet. The standard high water above mean tide at New York city is 605.32 feet; the standard low water adopted by the United States Lake Survey for the new charts, above mean tide at New York city, is 600·56 feet. The low water datum for harbour improvements above mean tide at New York city is 601·75 feet. The mean level of Lake Superior above the mean level of Lake Huron is 20.89 feet. The discharge of St. Marys river, as measured in 1902 by the United States Lake Survey officers, at the mean stage of Lake Superior (602·29 feet) is 75,000 cubic feet per second. The increase in discharge per foot rise of the lake is 15,500 cubic feet per second. The average date of the opening of navigation at the St. Mary's Falls Canadian canal is April 27, and the average date of the closing of navigation is December 2.

During the year 1904 the monthly mean stages of the lake above mean tide at New York city were as follows:—

	Feet.
January	602·51
February	602·32
March	602·14
April	603·19
May	602·51
June	602·81
July	602·91
August	602·99
September	603·08
October	603·27
November	603·21
December	602·82

The yearly mean stage in 1904 was, therefore, 602·73 feet.

During the season of navigation of 1905, from March to October, inclusive, the mean stages of Lake Superior have been as follows :—

	Feet.
March	602·05
April	602·24
May	602·48
June	602·76
July	603·08
August	603·21
September	603·41
October	603·42

The Canadian government has established storm warning stations at Fort William, Port Arthur and Sault Ste. Marie. At Fort William it consists in a signal mast, a little to the east of the C.P.R. elevators. At Port Arthur a signal mast is to be seen on the inner end of the government wharf, and another signal mast exists on the government wharf at Sault Ste. Marie, Ontario. The United States government has established life-saving stations at the following places:—

Crips, Michigan ; Duluth, Minnesota ; Grand Marais, Michigan ; Marquette, Michigan; Muskallonge Lake, Michigan, near the mouth of Sucker River, 15½ miles easterly of Grand Marais; also at Portage Lake ship canals. Two Hearted River and at Vermillion Point, Michigan.

Compared with others of the Great Lakes, Lake Superior was fairly well provided with natural harbours, and the works of improvement, on the Canadian side as well as on the United States side, have created additional harbours of refuge at

various points. One class of improved harbours consists of bays of generally deep water, having wide mouths, or openings towards the lake, which have been provided with breakwaters to partially close the natural openings and form the desired protection.

A second class of improved harbours consists of those whose entrances are formed by parallel piers or jetties extending from the shore out across a bar of gravel or sand to the desired depth of water, the primary object being either to confine the current to a fixed and narrow width in order to scour and maintain the channel to the depth needed, or to prevent an improved channel from being filled by drifting sand.

Port Arthur affords an illustration of a dredged channel protected from waves and drifting material by a breakwater pier. In late years deeper channels have been required than could be obtained by the scouring action of the currents alone, and dredging has been resorted to. In the harbours at the mouths of rivers the enlargement of the channels by dredging has reduced the velocity of the outgoing currents and changed their action from that of scouring to that of depositing silt or coarser material, so that further dredging from time to time has become necessary. Therefore the jetty piers now serve only to protect the improved channels from the filling up which would result from the action of storm waves and of the so-called littoral currents.

Among the natural and improved harbours on the Canadian side of Lake Superior, from Gros Cap, at the head of St. Mary's river to Port Arthur, there are Goulais bay, with an average depth of nine fathoms inside and which affords good anchorage and protection from all winds; Gargantus harbour, a small harbour of refuge; about 77 miles from the head of St. Mary's river, which affords anchorage and shelter; Michipicoten harbour, on the northerly shore of Michipicoten bay, and the easterly shore of Lake Superior, which is one of the lake terminals of the Algoma Central Railway; Peninsula harbour, Nipigon bay and Thunder bay, which is a fine sheet of water extending 35 miles in a northeast and southwest direction, with a width of 15 miles northwest and southwest, narrowing at both ends. On its shores, cliffs rise from 1,000 to 1,350 feet out of the lake. The northwest coast of the bay, extending from Port Arthur to its head, may be approached within a mile.

About 25 miles opposite Thunder Cape is Isle Royal. The north shore of this island can be approached with safety within three-quarters of a mile of the general direction of the coast. Right at the mouth of Thunder bay is Pie island, about 900 feet high, eight miles long east and west by four miles wide. Good anchorage from southerly winds is to be found off the north and northwest sides, and from the northerly winds off the south side. The passage between Pie island and Thunder cape, 5¼ miles wide, is quite clean. Thunder cape is a very prominent headland, about 800 feet high, marking the coast entrance to Thunder bay. Upon its south end is a lighthouse tower 45 feet high, exhibiting a light revolving white every minute, visible at 14 miles. A steam fog-horn sounds blasts of five seconds every half minute. All parts of the cape may be approached to within 200 yards.

On the northwestern side of Thunder bay is Port Arthur, the western terminus of the Canadian Northern Railroad.

14. PORT ARTHUR AND FORT WILLIAM.

Port Arthur is rendered safe by breakwaters parallel to the shore, the entrance being through a gap marked by a fixed red light, 43 feet high, upon the northern portion of the breakwater. The channel is dredged, and 19 feet may be carried to the Canadian Northern Railway Company's elevator. The inner harbour at Port Arthur is therefore formed by two cribwork breakwaters extending in front of the wharfs on the water front of the town. The more northerly breakwater is 3,654 feet long, and has a general trend south of 25 degrees west from a point outside the elevator wharf at the north end of the town. The lighthouse is on this breakwater, and is

situated at 31 feet from its south end, showing, as above stated, a fixed red light 43 feet high.

The breakwaters are sunk generally in 17 and 18 feet of water, and have a height of five feet six inches above low water. On the lake side the crib work is made vertical up to about low water line, and from there to the top it is finished with a slope one in one, strongly sheeted and the angles protected by boiler plates. The construction of this breakwater has converted what was formerly a dangerous and exposed roadstead into a safe and commodious harbour.

The main entrance between the breakwater is 366 feet wide and is lighted as above noted. A red gas buoy showing a white acetylene gas light automatically occulted at short intervals, is moored in the prolongation of the dredged channel, 2,575 feet southeast by east of the breakwater light. Mariners find the best water by passing 50 to 100 feet southwest of the buoy and steering to pass the same distance off the northern breakwater, when not less than nineteen feet wil be found.

There are two other entrances: The western entrance, 1,800 feet in width and reported in 1899 as 12 to 18 feet deep, and the eastern entrance 250 feet wide and reported in 1899 as 17 feet deep. The depth of water in the basin was reported in 1899 as varying from 14 to 18 feet.

The Pigeon River Lumber Company have at Port Arthur a large saw mill and, besides, several new industries are developing. Port Arthur is connected with Fort William by an electric railway, and both cities have a common telephone system.

Fort William is situated five miles west of Port Arthur, on the west side of Thunder Bay and at a short distance up the Kaministiquia river, described as a broad stream with firm banks and good advantages for lake traffic. Fort William is the great shipping port of the Canadian northwest.

The Kaministiquia river rises in Dog lake, at an elevation of about 719 feet above Lake Superior, and flows southerly and then easterly to the lake, a distance of about 42 miles. Falls and rapids are found along its course down to a few miles above the lake. It bifurcates twice in the vicinity of Fort William and has three mouths, known as Fort William river, McKeller's river, and Mission river. Extensive dredging operations by the Canadian government have deepened and widened the channel over the bar of the mouth, and up the river to Fort William, and provided basins for the use of vessels. The nature of the river is such that sand bars are formed at the mouth each season.

The channel at Fort William is dredged and 19 feet of water may be carried into Fort William, and 16 feet may be found five miles up the river to the coal unloading plant of the Canadian Northern Railway Company.

For the purpose of extending the period of navigation a powerful tug had been employed in the fall of the year of 1904 to prevent the formation of ice on the shoals at the mouth of the river, or to break it loose if formed, and thus keep the channel open for a longer time. The material brought down by the river is fine and appears to consist of clay and light sand. The shoals extending out from the mouth on either of the channels, to the vicinity of the Welcome island, are sandy and have a very gentle slope, so that sailboats may ground half a mile from shore within hailing distance of vessels navigating the channel.

From Mutton island, which is situated a short distance north of the mouth of Mission River, to the shore the water is so shallow that it is scarcely possible for even a row-boat to pass. This shoal appears to be the direct product of the action of the waves and the final result will probably be a bar connecting the island with the shore.

Fort William harbour is well lighted.

A cylindrical gas buoy, displaying a white acetylene gas light automatically occulted at short intervals, is moored at the outer end of the northern edge of the dredged channel.

The axis of the channel is marked by two fixed red range lights. The front tower stands on the east end of the timber facing on the Canadian Pacific Railway coal

yard, which forms the north shore of the river at that point, and is close to the water's edge; the light is 42 feet above waterlevel. The rear tower stands behind the trestles and pockets of the coal plant, by which it is partially hidden from the water, and is 122 feet high and painted red. A day-mark, near top of lantern column, consists of a black square, six feet on a side, with a white diamond in the middle. The light is incandescent electric, 128 feet above lake level, and is visible 12½ miles in the line of range.

The towns of Fort William and Port Arthur afford a most striking example of western progress. The population has doubled in two years. Port Arthur has now 7,000 people, and Fort William 7,500. It is predicted that within five years there will be 50,000 people within the borders of the two cities. This remarkable growth is due to the advantageous situation of Port Arthur and Fort William, and their unexcelled railway and steamship facilities. They are the gateways to the great west, the spout of the hopper from which pours millions of bushels of grain grown on the western prairies and a large proportion of which is transhipped there, to be carried down the lake to Georgian Bay points or to Cleveland, Buffalo, Kingston and Montreal. The facilities for handling this great crop at Port Arthur and Fort William are being increased from year to year. The elevator storage capacity at Fort William and Port Arthur, according to the latest figures, are as follows:—

At Fort William—

	Bushels.
Canadian Pacific Railway Elevators, A and C	2,750,000
" " B and E	2,500,000
" " D	3,162,000
Total	8,412,000
The Empire Elevator Company, Ltd	1,700,000
The Ogilvie Flour Mills Company, Ltd	750,000
Total at Fort William	10,862,000

At Port Arthur—

Canadian Northern Railway, Elevators, A	3,500,000
" " B	3,000,000
Total	6,500,000
J. G. King & Co.'s elevators	800,000
Total at Port Arthur	7,300,000

The total amount of wheat shipped at the Canadian Pacific Railway elevators at Fort William for the year ended December 31, 1904, is 22,534,416 bushels. The total amount of wheat shipped out of the same elevators from January 1 to November 21, 1905, inclusive, is 17,511,041 bushels.

On the other hand, the Canadian Northern Railway Company, in a statement furnished December 1, 1905, states that the total storage capacity of its two elevators at Port Arthur is 7,000,000 bushels. The two working houses have a total receiving capacity of 250 cars per ten hours, and a shipping capacity into the vessels of 225,000 bushels per hour.

From the crop of 1904 the Canadian Northern Railway passed 7,024,550 bushels through its elevators, and from the crop of 1905, up to and including November 25, the company received into its elevators at Port Arthur 6,070,002 bushels.

The elevators of the Empire Elevator Company, Limited, was constructed at Fort William in 1904 and completed December 1 of the same year. The wooden working house of the elevator has a capacity of 500,000 bushels, and there is besides a fire-

proof storage of a capacity of 1,250,000 bushels. The total amount of grain handled during 1904 is 5,000,000 bushels, and during 1905, up to November 30, 6,000,000 bushels.

In 1904 and in 1905 a channel was dredged by the Department of Public Works along the face of the Empire Elevator Company's new dock. When completed this channel will be 140 feet in width, and will have a depth of 22 feet below zero of the new gauge adopted in January, 1904. The channel of the River Kaministiquia from the Mission river to the Canadian Northern Railway coal dock at West Fort William has been widened and deepened in places where shoals were found. During the season of 1904, the sum of $91,508.92 was spent in this work by the Department of Public Works, and a further sum of $195,000 was appropriated for the season of 1905.

The Ogilvie Flour Mills Company, Limited, have started to erect at Fort William one of the largest flour mills in Canada, and several eastern concerns are negotiating for locations to start branch factories. It is expected that within the next few years there will be an industrial development at the head of the lakes, second to no other city in Canada.

15. THE WATER POWER AT KAKABECA FALLS.

Another factor of the development at Fort William and Port Arthur will be the availability of electric power from Kakabeca falls, which the members of the Subcommittee took occasion to visit.

Kakabeca falls proper are situated about 16 miles from Fort William. For upwards of a mile above the actual falls, the river tumbles down a succession of rocky inclines, forming the Ecarte rapids, at the head of which a company composed of Montreal capitalists, has constructed the intake of its power canal.

Skirting the valley of the river on its northern bank, the Canadian Northern Railway passes within a quarter of a mile of the falls. The Power Company has been engaged during the whole summer of 1905 in the harnessing of the river as follows:—

From above the Ecarte Rapids a gigantic circular flume or aqueduct is being laid at an elevation which will add another forty feet to the hundred and twenty of the falls, while the lower rapids, below which the turbines are being placed, will add yet another twenty feet, giving a total head of no less than one hundred and eighty feet, higher than all but one of the heads of water at the power development at Niagara, and only falling short of that one by a short space that could be measured by inches. The aqueduct is a huge tube of concrete, ten feet in its inside diameter, the whole structure being strongly reinforced with hoops of steel and bars running in a longitudinal direction, forming a network of steel of six-inch mesh, imbedded in solid concrete. The construction of this acqueduct is unique in American engineering, the only others of a somewhat similar kind being built in France, so that the successful completion of this work may prove to be an important epoch in the solution of engineering problems relating to water-power development.

From the point of intake to the outlet into the main reservoir which is on the brow of a steep ridge overlooking the site of the power house, 180 feet below, this pipe lies practically level for a distance of 7,000 feet, and after being discharged into the reservoir the water is divided and flows through two seven-foot penstocks, which run at a steep incline to the water wheels on the bank of the river.

The construction of the flume will require approximately 35,000 yards of concrete, and the progress of the works has been facilitated in the most material manner by the fact that the ground through which the big pipe runs is largely made of beds of gravel of an excellent quality for the making of concrete, so that the excavation of the shallow ditch in which it lies provides at the same time an important item in the material required for the building of the conduit. At its upper end it will traverse a rocky belt, and it is estimated that 35,000 cubic yards of rock will have to be removed here and the place where the power house is under construction.

Across the Kaministiquia, just below the intake, a dam is being thrown, 20 feet

in height, there being already a depth of 14 feet in the river at this point. The design of this dam is such as to admit the passage of the maximum flow of water without materially affecting the levels of the upper reaches of the river when it is in flood, while retaining enough to keep the big flume filled to its capactiy even when the stream is at its lowest.

The reservoir into which the flume discharges is a massive structure of concrete and steel, from which are fed the two steel penstocks leading direct to the turbine wheels, 180 feet below. Each of these wheels will be capable of developing 7,000 horse-power, the initial development which is now under way being thus 14,000 horse-power.

The plans are, however, being prepared, and the work laid out so as to permit of this being doubled at any time by the building of a second flume and providing two additional penstocks, all the rest of the plant being capable of working to the double capacity. In fact, the present operations are intended to be merely the commencement of a water power development which will be on a very large scale, and the ultimate development may greatly exceed that here outlined, for, if the demand for power at the head of the lakes should exceed the 28,000 horse-power thus provided, there is ample reserve behind to duplicate it, and possibly to multiply this by two again.

From the power house at its point of generation, the electric energy will be transmitted to Fort William along a copper wire, at a pressure of 25,000 volts to the sub-station now being erected in the western end of the town, and from this it will be stepped down to any voltage that may be required by consumers. This sub-station is a plain but massive building of concrete and steel, with a floor area of 5,600 square feet and a height of 40 feet.

Construction on the harnessing of the river is being pushed ahead with even greater rapidity than was anticipated, and with a force of about 700 constantly employed through the winter, the company will have the current transmitted to Fort William by June 1, 1906. A bargain has been struck with the town of Fort William, under the terms of which the town will get 600 horse-power at a flat rate of $25 per horse-power for a 20-hour service, and the Ogilvie mills will be ready to use power by the spring of next year, the elevator of the company being now operated by electrical power provided by the town plant and generated by steam.

How great will be the effect of this power development upon the future of Fort William as a manufacturing centre for all industries that are seeking to enter the growing markets of the great West, can be readily appreciated. Raw material can be delivered on the docks of Fort William as cheaply as at any port on the lake system, while the railway haul from this point to the places of consumption is short as compared to the distance from the factories of the East, and the rapid settlement of Manitoba and the provinces of the West will, in the near future, make the West one of the most important markets for all kinds of manufactured articles in Canada.

After their visit in the harbours of Port Arthur and Fort William and the surrounding country, the members of the sub-committee went across to Duluth, leaving Fort William on Sunday evening, August 20, on board the steamshfip *Huronic,* of the Northwestern Navigation Company.

Arriving at Duluth the following morning, before noon, they visited the harbour of Duluth.

16. THE HARBOUR OF DULUTH.

The harbour of Duluth and the harbour of Superior are practically the same, and they include all navigable waters lying inside of Minnesota Point and along the fronts of the cities of Duluth and Superior to the city limits of each, embracing the new Duluth canal, Superior entry, Superior bay, Allouez bay, St. Louis bay and St. Louis river as far westerly as the bounds of the city of Duluth.

Before improvement, the bays were broad expanses of shallow water with a general depth of only eight or nine feet, except along the channels, which were deeper

but variable. The natural entrance to Superior bay from Lake Superior, now called Superior entry (also known as the Wisconsin entrance), was a winding channel over a shifting sand bar, with an available depth of 9 to 11 feet, and difficult to follow.

The United States commenced the work of improvement at Superior entry in 1867, under a plan providing for building two parallel jetties across the bar and dredging a channel between them, and began operations at Duluth in 1871, under a plan providing for the extension of the breakwater commenced by the Northern Pacific Railroad just outside of the northerly end of Minnesota point. The extension was completed for a distance of about 1,000 feet from shore, but the superstructure was destroyed by storms, leaving the cribs submerged.

The Duluth canal was cut through Minnesota point by the city of Duluth in 1870 and 1871, and in 1873 its maintenance and improvement were undertaken by the United States to provide an inner harbour of easy access in place of the exterior harbour, for the formation of which the breakwater had been constructed.

The latest approved project provides for the widening and deepening of channels to a navigable depth of 20 feet, for a new channel in Allouez bay, a new channel in St. Louis bay extending northerly, and a new channel in St. Louis river; for extensive turning and anchorage basins at the junction of various channels; for widening the Duluth canal and rebuilding the piers, and for rebuilding the piers at Superior Entry. The work of widening the Duluth canal and rebuilding the piers was completed in 1901. The extensive dredging contract, under which work was in progress for nearly six seasons, and which involved the removal of over 21,500,000 yards of materials, was completed November 14, 1902.

The work of rebuilding the piers at Superior entry was begun in the spring of 1903. There will be two new pirs built of concrete, the south pier 2,960·5 feet, and the north pier 3,418.5 feet in length. The work in the seasons of 1903 and 1904 was upon the westerly half of the south pier, which is located about 70 feet south of and behind the old south pier, the old pier remaining in place while the new one is under construction. About 1,600 lineal feet of the new pier was completed at the close of the season of 1904. The operations of 1905 have been on this line and have not interfered in any way with navigation.

The new piers of the Duluth canal, completed in 1900-1, are of equal dimensions, and the clear width between them at the entrance and for a distance of about 1,250 feet from the outer end is 300 feet, after which they flare out at the harbour end to a width of about 540 feet. Each has a length of about 1,700 feet, and projects about 2,150 feet beyond the shore line.

The foundation cribs extend 22 feet below low water datum and the concrete superstructure rises from 10 to 18 feet above that plane. Riprap has been placed along the base of the piers to prevent undermining by currents. Along channel faces of north and south piers is 16 to 23 feet of water over the riprap, dropping off rapidly to greater depths except for the outer 450 feet of channel face of south pier, where there was formerly a rock embankment; this embankment has been partially removed, leaving a depth of 11 to 16 feet close to the pier, a least depth of 17 feet at 20 feet out, and 23 feet at 33 feet out from pier. The clear width of channel with 23 feet least depth is about 240 feet; depth along mid-channel is at least 25 feet.

One of the principal attractions of the harbour of Duluth is the new Aerial ferry or suspended-car ferry over the Duluth canal. The truss which spans the channel has a clear height of 138 feet above low water datum, 137 feet above ordinary high water, and about 135 feet above the highest recorded stage of water in the harbour. Any vessel on the great lakes can freely pass under the bridge. The car, which is suspended from a trolley or truck running on the overhead track and reaching down to within about 12 feet of the water has been completed and inaugurated last summer. The car is 50 feet long and 31 feet wide, is propelled by an electric motor, which is placed under the floor of the car and turns a drum from which cables lead up to the overhead truck and then along the bridge to either tower.

The car is large enough to carry at the same time street-car, teams and foot

passengers, the motor is in duplicate, and two independent sources of electric current are available, either of which can be turned on quickly in case the other fails. There is a controller at each end of the car, and the operator is stationed at the forward end of the car. The time required for crossing the channel is 1½ minutes. There is an additional and independent hand gear for propelling the car in case of failure of the electric motor. This moves the car much more slowly, and is used only for the purpose of getting the car away from the channel in case of a breakdown.

The steel bridge is 393 feet long, and the bridge supports at the ground are 78 feet wide. This aerial bridge was completed in 1904, at an expense of $100,000. It is free to the public and it has a carrying capacity of 25,000 pounds.

17. THE PROPOSED WORKS OF THE MINNESOTA CANAL AND POWER COMPANY.

During their visit to Duluth, the members of the sub-committee had several interviews with persons and companies interested in the proposed works of the Minnesota Canal and Power Company at St. Paul and Minneapolis, parties also interested in the proposed undertaking of said company were interviewed informally and valuable information was obtained.

At the height of land in St. Louis and Lake counties, in northern Minnesota, the waters from Birch lake and White Iron lake, and the streams running out thereof, and the immense watershed thereof, run northward and ultimately into Rainy lake, and from there into Rainy river, passing into the Lake of the Woods. The water from this source forms by computation seven per cent of the water passing out of Rainy lake over Alberton falls at Koochiching. The water system of Rainy river and Lake of the Woods have long been established as a commercial highway. From the Canadian ports of Rat Portage and Fort Francis two large and well equipped passenger and freight lines ply daily during the season of navigation, forming the means of water communication between the Canadian ports of Rat Portage, Rainy River town, Boucherville, Barwick, Emo, Big Forks, Little Forks, Isherwood, Fort Francis, Bears Pass, Seine River and Mine Centre, and forming along a considerable part of such route the only vehicle of passenger and freight communication.

The most important section of the 200 miles of navigation is the Rainy river, flowing through what is rapidly becoming a thickly populated and prosperous valley for some 80 odd miles, with towns rapidly building up at close intervals on its banks, dependent almost wholly on the river route for their mercantile and manufacturing interests. The fine class of steamboats plying on this water is already, in certain portions of the summer, hampered by low water on the rapids and shoals of the river, and the proprietors of the regular steamboat lines have been earnestly petitioning for such improvement being made on the river as would remove such disability, a disability that compels the withdrawal, for considerable intervals during each summer, of some of the large and deeper draught steamboats. In view of the fact that navigation is already suffering for lack of adequate water in portions of Rainy river and in portions of Rainy lake, the population of that district has learned with surprise and alarm that active steps had been taken by the Minnesota Canal and Power Company, of Duluth, Minnesota, to obtain the authorization of the Federal government of the United States, through the Commissioner of the General Land Office at Washington, to construct a dam or dams and canal to divert all the waters of Birch lake and White Iron lake watershed, hereinbefore referred to, into the Embarrass river, and by it into Lake Superior at Duluth, thus diverting from this long-established international waterway of Rainy lake and Rainy river a large proportion mentioned of its tributary waters. It is claimed that, if permission be given by the Federal government of the United States to the project of the Minnesota Canal and Power Company, a disastrous injustice will be done to Canadian and American established navigation companies that are now using the water highway of Rainy lake and Rainy river, and to the manufacturing towns along the river, both on the Canadian and United States sides.

It is claimed that the waters of Birch lake and Birch river and White Iron lake

help to form the chain of lakes and rivers along the boundary which are referred to in the Webster-Ashburton treaty, and which, by the terms of that treaty, are a public highway, free to the citizens and subjects of both countries. The scheme of the Minnesota Canal and Power Company is to take 600 cubic feet per second out of a total estimated average flow of 985 cubic feet per second. The minimum flow is estimated at 210 cubic feet per second. The quantity to be taken, 600 cubic feet per second, would be more than the natural flow during the greater part of the year.

The corporation of the town of Fort Francis on March 17, 1904, sent to the Minister of Marine and Fisheries of Canada a protest against the proposed undertaking of the Minnesota Canal and Power Company. This protest has been sent by the Canadian government to the United States government through the British Embassy at Washington.

On January 25, 1905, the Acting Secretary of State, F. B. Loomis, informed the Right Honourable Sir H. M. Durand, G.C.M.G., the British Ambassador at Washington, that the United States Secretary of the Interior had directed the Commissioner of the General Land Office, before whom the application of the Minnesota Canal and Power Company was pending, to suspend further action in the case until advised as to the result of the inquiry which was to be made by the International Water Boundary Commission. This clearly meant that, in the opinion of the United States government then, the case of the Minnesota Canal and Power Company was to be investigated and reported upon by the International Waterways Commission. Later on, somewhere in the month of March, 1905, the Attorney General of the United States, called upon to give his opinion on the construction to be put upon the Act of Congress authorizing the appointment of the commission, stated in reference to the case of the St. John river, New Brunswick, that the jurisdiction of said commission was limited to the system of the Great Lakes and the St. Lawrence river.

The members of the sub-committee informed the various parties they interviewed at Duluth, Minnesota, and at St. Paul and Minneapolis, that the Canadian section of the commission was willing to take up the case of the Minnesota Canal and Power Company, according to instructions received by them from the Canadian government, but that the American section had expressed doubts as to whether or not they had the power to deal with it.

18. WORKS OF THE ONTARIO AND MINNESOTA POWER COMPANY, KOOCHICHING FALLS.

Since the Minnesota Canal and Power Company made this application to the United States Secretary of the Interior, the Rainy River Development Company and the Ontario and Minnesota Power Company have constructed extensive works at Koochiching falls for the purpose of improving navigation in Rainy lake and Rainy river, with the expectation of using the power which will be developed for manufacturing purposes. The Ontario and Minnesota Power Company, under a contract with the Ontario government, had acquired the Canadian end of the Koochiching falls, and a number of acres of shore land adjacent. They have obtained during the last session of parliament an Act of incorporation, being chapter 139, and entitled 'An Act respecting the Ontario and Minnesota Power Company.'

By an Order in Council, approved by the Governor General on September 19, 1905, the Minister of Public Works and the Government of Canada have approved the plans of the Ontario and Minnesota Power Company. The engineers of the Department of Public Works stated that in so far as the construction of the dam at Koochiching Falls is concerned, it will in no way interfere with navigation above or below the fall at Fort Francis, but will, in fact, be an improvement. The dangerous rapids, two miles above Fort Francis, will be flooded, thereby improving materially the navigation. The freshet waters stored in Rainy lake could be let out, during the season of low water, thereby also considerably improving navigation of the river between Fort Francis and the Lake of the Woods. The only objection that could be raised to the proposed elevation of the dam is provided for by a proposed revetment wall to

be constructed by the company, and also by a clause in the Act of incorporation of the company, which makes all damages to lands caused by their works a charge to be borne by them.

The proposed works of the Minnesota Canal and Power Company would interfere with the works authorized by His Excellency the Governor General in Council. It is expected that soon after the present session of Congress, the International Waterways Commission will take up this question.

19. THE HARBOUR OF CHICAGO, AND THE CHICAGO DRAINAGE CANAL.

The members of the sub-committee left St. Paul on Wednesday evening, August 23, for Chicago, in view of making a visit to the Chicago Drainage Canal, and a preliminary investigation on a question presented to the Commission at its meetings of June 14 and 15 in Toronto, viz.: 'The effect of the diversion by the Chicago Drainage Canal of 10,000 cubic feet per second on the levels of Lakes Michigan, Huron, Erie and Ontario, and on the River St. Lawrence.'

The first day of their visit to Chicago was spent in making an inspection of the harbour of Chicago and of the large improvement works constructed therein by the United States government.

As stated in the reports of the engineers of the United States War Department, the harbour of Chicago originally could be used by none but the smallest craft, and then only when temporarily deepened by scour due to freshets. Before improvement by the government, Chicago river made a sharp turn to the southward upon approaching the lake shore, to which it ran parallel for a considerable distance before emptying into the lake, being separated from the latter by a long, narrow sand spit.

The first improvement was undertaken by the government in 1833, and consisted in cutting through the sand spit at the point where the river made a sharp turn to the southward, in protecting the banks of this cut by pile pier revetments, which have been extended from time to time, and in aiding the natural scouring of the channel between the piers by dredging. In 1870, to provide a safe anchorage ground for vessels loaded for departure, but detained by gales, or for others seeking shelter at such times, also to provide facilities for relieving the overcrowded condition of the river, and to protect the wharfs and slips proposed to be constructed along the lake front between Randolph and Twelfth streets, the easterly breakwater was projected, and later the southerly breakwater. In 1878, to facilitate entrance to the harbour, and to provide a sheltered anchorage ground in deep water during severe northerly storms, the exterior breakwater was proposed. The works of improvement, include dredging harbour entrance and a portion of basin to a depth of from 21 :8 to 22 :8 feet ; improving the piers at the mouth of the Chicago river, and extending the easterly, southerly, and exterior breakwaters.

The exterior breakwater is about a mile northeast of the entrance to the river ; it is 5,413 feet long, 30 feet wide, and was constructed between 1880 and 1889 in water varying from 18 to 32 feet in depth. It has proved a decided benefit to navigation. The harbour of refuge between this breakwater and the entrance to the river has a depth of 18 to 32 feet. The easterly breakwater is about 4,037 feet long, with a shore return at the north end 300 feet long. The southerly breakwater begins about 750 feet south of the southerly end of the easterly breakwater, and is about 3,000 feet long. The easterly and southerly breakwaters, with the south pier to the north and the shore to the west, form the outer basin. The construction of the proposed wharfs and slips along the lake shore from Randolph street to Twelfth street, having been delayed from year to year by the lake from litigation, and finally abandoned, and a bulkhead was built in 1896 along the dock line established by the Secretary of War in August, 1871, and September, 1890; the area west of the bulkhead has been designated as a public park and is being gradually filled in, thereby reducing the area of the basin to 270 acres. Its length is about 7,300 feet, and its greatest width is about 2,000 feet. The basin for 1,150 feet width along easterly breakwater and 3,000 feet

length southward from south pier, has been dredged to 32·8 feet depth. The undredged portion of the basin is very irregular in depth, varying from 12 to 20 feet at low water.

Chicago is divided into three sections by the Chicago river with its two branches. This river is a mile long and presents a busy appearance with vessels docked all along its banks.

One of the interesting features of Chicago is the Drainage canal, which unites the Chicago river and the Mississippi river system, and saves the lake from being polluted by the drainage of Chicago's sewerage system. This canal cost $34,000,000

The following dimensions of the Drainage canal are furnished by the officer in charge : Distance from mouth of Chicago river to junction of main channel of canal, with the west fork of south branch of Chicago river at Robert street, about six miles. Length of main channel, Robey street to controlling works at Lockport, 28·05 miles. Dimensions : Robey street to Summit, 7·8 miles, 110 feet wide at bottom, 198 ft. wide at water line, with minimum depth of water, 22 feet ; Summit to Willow Springs, 5·3 miles, 202 feet wide at bottom, 290 feet wide at water line, with 22 feet depth of water; at Willow Springs the channel narrows to the walled bottom, 162 rock cross-section, extending 14·95 miles to Lockport, 160 feet wide at bottom, 162 feet wide at top. This canal is not yet entirely completed. It was designed to take up eventually a volume of 10,000 cubic feet per second. This represents about five per cent of the flow over Niagara Falls, which is about 222,400 cubic feet per second. The Chicago Drainage canal, when completed, will, according to a calculaton furnished by the engineer of the Canadian section of the commission, lower the level of Lake Huron by six inches and the level of Lake Eric by four and a half inches. But the Chicago Drainage canal takes now less than half of the volume originally contemplated.

The United States War Department, in its power of conserviency to protect the navigation in the Chicago river, has, December 5, 1901, limited the volume of water which can be taken throughh it into the Chicago Drainage canal, to 250,000 cubic feet per minute throughout the 24 hours of the day, which is about 4,166 cubic feet per second. If the original plans of the Chicago Drainage Canal are carried out, and it seems likely that this will be done, it will eventually take out, as above stated, 10,000 cubic feet per second.

20. LAKE MICHIGAN.

The city of Chicago has a frontage of thirty miles along the shore of Lake Michigan, which is the only one out of the five great lakes having its entire shores in United States territory.

The area of the water surface of Lake Michigan is 22,400 square miles: its drained area is 45,700 square miles, and the total area of its basin is 68,100 square miles. The average annual rainfall on Lake Michigan is 33 inches. The maximum depth recorded by the United States Lake Survey officers is 870 feet. The steamer track on the lake from Chicago to the Strait of Mackinac is 321 miles. The mean surface of the lake above mean tide at New York city during 45 years (1860-1904) is 581.35 feet. The standard high water (of 1858) above mean tide at New York city is 584.69 feet, and the standard low water above mean tide at New York city is 578.51. The mean surface of Lake Michigan below the mean surface of Lake Superior is 20.94 feet. The average date of opening of navigation at the Strait of Mackinac is the 17th of April, and the average date of closing of navigation at the same place is January 9.

SESSIONAL PAPER No. 19

The following list gives the monthly mean stages of the lake, above mean tide at New York city, during the year 1904:—

January	579.90 feet.
February	579.86 "
March	580.14 "
April	580.59 "
May	580.95 "
June	580.34 "
July	581.38 "
August	581.23 "
September	581.19 "
October	581.05 "
November	580.75 "
December	580.37 "

The yearly mean stage in 1904 was 580.65 feet.

During the season of navigation of 1905 the monthly mean stages of Lake Michigan have been as follows:—

March	580.31 feet.
April	580.60 "
May	581.03 "
June	581.36 "
July	581.49 "
August	581.46 "
September	581.40 "
October	580.94 "

Lake Michigan is navigable in winter. This navigation is of importance and is increasing.

At the present time there are the following regular winter lines of steamers:—

Two lines from Milwaukee to Racine and Chicago.
One line from Milwaukee to Sturgeon Bay canal and intermediate ports.
One line from Milwaukee to Grand Haven.
One line from Milwaukee to Ludington.
One line from Manitowac to Ludington.
One line from Manitowac and Kewaunee to Frankfort.
One line from Frankfort to Manistique.
One line from Northport to Manistique.

Efforts have been made to maintain a regular winter line from Frankfort to Menominee via Sturgeon Bay canal or 'Death's Door,' but as yet they have not proved successful.

21. DETROIT RIVER AND LIMEKILN CROSSING.

The members of the sub-committee left Chicago on Saturday, August 26, for Detroit, so as to make an inspection of the Detroit river, which unites Lake St. Clair to Lake Erie.

After a visit to the office of the United States Lake Survey, in the Campau Building, where valuable information and important documents bearing on the work entrusted to the commission were obtained, a trip down the Detroit river was undertaken. First of all, it will not be out of place to give here a description of the river as furnished by the engineers of the United States War Department at Detroit, viz.:—

'The Detroit river has two characteristic sections, the upper or undivided portion and the lower or divided portion. The upper or undivided portion runs from Lake

St. Clair to the head of Fighting island, a distance, by steamer track, of 13 miles. At this point the river is divided by islands into several channels, which do not reunite at the mouth of the river. The distance from the head of Fighting island to Bar Point Shoal lightship by steamer track is 15¼ miles, making he total distance from Lake St. Clair to Lake Erie 28¼ miles.'

The discharge through the upper or undivided portion of the river is 208,600 feet per second when Lake Erie is at a stage of 572.61 feet above mean tide at New York. The increase of the discharge per foot rise of the lake is approximately 21,000 cubic feet per second.

Throughout the upper portion of the river the mean current velocity is about 1½ miles per hour; but at Limekiln crossing, near the mouth of the river, the mean velocity is about 2½ miles per hour, with a maximum velocity of about five miles per hour. For the northerly 16 miles, the river bottom is of earth and the channel banks are usually quite steep, but at the southerly portion the river bottom consists mainly of bed rock and boulders, and the channel banks usually are more sloping. In the upper portion of the river there are two islands—Isle aux Peches and Belle Isle; there is deep watter on each side of islands.

Originally the channel at Limekiln crossing could not be depended on for more than 13 feet of water, the ordinary depth being much affected by the direction of the wind. It was in 1874 that the United States government started work of improvement at this point, and they consisted of a curved channel of 300 feet wide, with a uniform depth of 20 feet. In 1883 it was determined to modify the project so as to secure a straight channel, the least width of which should be 300 feet with a somewhat greater width at either end. In 1886 this was further modified so as to increase the width to 400 feet by removing an additional 100 feet from the western side. In 1888 a further additional width of 40 feet on the western side was authorized. This 440 foot channel was completed during the fiscal year ended June 30, 1891. The estimated cost of a 400 foot channel was $1,374.500. The total amount expended up to June 30, 1891, was $702,122.04 for a channel of 440 feet.

In 1899 the United States Congress made provisions in the River and Harbour Act for a channel of 21 feet deep from Detroit to Lake Erie. The distance from Detroit to deep water in Lake Erie is about 24 miles, but the section of the river which required any considerable improvement to secure a safe and convenient channel 21 feet deep, was from near the upper end of Grosse Isle to the Detroit River lighthouse in Lake Erie. All improvements made up to 1900 have been confined to this section of the river. The improved channel passed east of Grosse island, Bois Blanc island and was in Canadian waters according to the international boundary line established by the treaty of August 9, 1842. That channel was not a convenient one for the enormous commerce coming through it. The United States War Department decided to make further improvements, and in the River and Harbour Act of June 13, 1902, the works now in way of construction were authorized. The plan was to continue operations in the channel then under improvement, so as to complete it with a low water depth of 21 feet and a minimum width of 600 feet, the side line of excavation being so located as to make the channel as straight as practicable, and especially to eliminate the dangerous bends between the head of Limekiln crossing and Bois Blanc island. The width of the channel, when completed, will be 800 feet opposite Bar point, and will be continued at that width out into Lake Erie. The cost of this excavation was at first estimated to be from $1,750,000 to $2,000,000, but the final estimate exceeds the original approximate estimate by nearly $2,000,000.

During the season of navigation of 1905 the Ballards Reef channel had a clear depth of 21 feet and a width of 600 feet. At Limekiln crossing, the width of the channel available to navigation was 420 feet, with a least depth of 19 feet. In the Bois Blanc Range channel there was a clear depth of 20 feet and a width of 600 feet. The Amherstburg Beach channel has also a clear depth of 20 feet, but it is only 250 feet wide. The Hackett Range channel has a least depth of 19 feet, with a width of 500 feet for the greater part of its length. During the season of 1905 the west half

of the channel was partly obstructed by improvements in progress. The Bay Point shoal channel extends to the Detroit River lighthouse and is 800 feet wide, with a depth of 20 feet.

The United States government has proceeded with the improvement of the Detroit river without reference to the international boundary line between the United States and Canada, and this since 1874 to the present time. In 1892 and 1893 there were negotiations between the government of Canada and the government of the United States in regard to the improvement made by the United States engineers at the Limekiln crossing. Mr. W. J. Thompson, C.E., made, under the direction of the Minister of Railways and Canals, a report on the subject, and pointed out that the maps of the Commissioners appointed under the treaty of Ghent (1814) place the improved channel at the Limekiln crossing exclusively in Canadian waters. This view, however, was not adopted by the Chief of Engineers of the United States Army, who, in a report dated November 14, 1888, had already stated that 'all the channels opened by the United States at the Limekiln crossing were in American waters, except the extreme northeast and southeast corners of the cut.' By article VII. of the treaty of 1842, it was provided as follows:—

'It is further agreed that the channels in the River St. Lawrence on both sides of the Long Sault islands and of Barnhardt's island, the channel in the River Detroit on both sides of the island of Bois Blanc, and between that island and both the American and Canadian shores, and all the several channels and passages between the various islands lying near the junction of the River St. Clair, with the lake of that name, shall be equally free and open for the ships, vessels and boats of both parties.' This provision, while disposing, by the concession of mutual rights in the channels, of the difficulties of boundary at the islands named, does not affect the boundary line south of those islands, nor does it affect the Limekiln crossing, which lies north of them. This is the view taken by the Canadian government in 1893, when the United States government made application to be allowed to proceed with the improvement of the Limekiln crossing in Canadian waters. The government of Canada in 1875 had itself assisted to the extent of $5,000 in the works of improving the navigation of Detroit river, and on August 8, 1893, the Governor General in council gave authority to the United States to proceed with the work of removing obstructions in the river, irrespective of the boundary line, such authority to be understood expressly as being given without prejudice to the possessory rights of Canada as defined by the maps and declarations of the Commissioners under the treaty of Ghent. This makes of the Limekiln crossing a channel common to both countries.

In concluding, it might be interesting to give a comparison between the freight traffic of the Detroit river, the Soo and Welland canals.

In regard to the traffic of the Detroit river, it may be said it has been comparatively measured, for the first time, during the past season of navigation. The compilation of the figures is founded on reports of masters of vessels, which are filed with the United States Department of Commerce and Labour through its Bureau of Statistics, and it covers the season of lake navigation of the calendar year 1905. The results are shown as follows:—

Month.	South Net Tons.	North Net Tons.	Total Net Tons.
April	1,575,877	792,711	2,368,588
May	4,551,972	1,352,524	5,904,496
June	5,523,021	1,780,541	7,303,562
July	5,911,625	1,941,534	7,853,159
August	6,300,003	2,314,810	8,614,813
September	4,597,640	1,493,059	6,090,699
October	5,582,689	1,522,905	7,105,594
November	4,593,752	1,578,375	6,172,127
December	1,354,506	871,542	2,226,048
	39,991,085	13,648,001	53,639,086

The south-bound movement is nearly three times as great as that in the opposite direction. This is largely due to the enormous east-bound tonnage of iron ore from upper lake ports to ports along the southern shore of Lake Erie, whence it is shipped by rail to the great iron and steel districts of southern Pennsylvania. The freight carried in a southerly direction through Detroit river during the past season of lake navigation is divided as follows:—

	Tons.
Flour	3,176,928
Ore and minerals, exclusive of coal, of which there was no south-bound movement	32,900,685
Lumber	1,851,324
Unclassified freight	971,151

The north-bound movement is divided as follows:—

Coal	11,928,158
Grain and flax seed	6,178
Ore and minerals	415,533
Lumber	11,940
Unclassified freight	1,286,192

The traffic through the Soo canals, which connect Lake Superior with the other great lakes, and through the Welland canal, which performs the same duty for Lake Ontario, has largely increased during the past season of navigation. Here follows a statement showing the traffic through the canals at Sault Ste. Marie, for the years 1896 to 1905, inclusive:—

Season.	South Net Tons.	North Net Tons.	Total Net Tons.
1896	.....	.....	16,239,061
1897	.....	.....	18,982,755
1898	.....	.....	21,234,664
1899	20,619,534	4,636,276	25,255,810
1900	20,532,493	5,110,580	25,643,075
1901	23,087,742	5,315,323	28,403,065
1902	30,275,989	5,685,157	35,961,146
1903	26,932,238	7,742,199	34,674,437
1904	24,213,902	7,332,204	31,546,106
1905	36,778,738	7,491,942	44,270,680

During the season of lake navigation of the calendar year 1905, the total freight movement through the United States canal amounted to 38,802,190 tons, while that through the Canadian canal totaled 5,468,490 tons.

It will be seen that, during the lake season of 1905, the difference between the amount of freight carried, respectively, through the Detroit river and the two Soo canals is 9,368,406 tons in favour of the former. This may be said to represent, at least with a fair degree of accuracy, the traffic through the Straits of Mackinac, which consists largely of shipments of grain and flour from Chicago and iron ore from Escanaba, while the west bound cargoes consist largely of coal and package freight.

The following table represents the volume of traffic between Lake Erie and Lake Ontario by way of the Canadian Welland canal, which runs parallel with the Niagara river :—

Season.	Down tons.	Up tons.	Total tons.
1894	745,942	243,592	989,534
1895	621,926	230,100	852,026
1896	957,928	285,667	1,243,595
1897	1,026,458	218,292	1,244,750
1898	902,590	218,211	1,120,730
1899	622,104	147,514	769,618
1900	579,312	109,245	688,557
1901	501,935	89,311	591,236
1902	567,286	78,811	646,097
1903	715,595	263,212	979,807
1904	620,078	182,402	802,480
1905	848,007	227,961	1,075,968

Respectfully submitted,

(Signed) THOMAS COTE,
Secretary.

OTTAWA, December 1, 1905.

APPENDIX A1.

INTERIM REPORT OF THE AMERICAN SECTION.

INTERNATIONAL WATERWAYS COMMISSION
(Office of American Section),
328 FEDERAL BUILDING,
BUFFALO, N.Y., December 1, 1905.

MR. SECRETARY,—1. The American section of the International Waterways Commission has the honour to submit the following progress report :—

2. The River and Harbour Act, approved June 13, 1902, contained the following provision, viz. :—

'Section 4. That the President of the United States is hereby requested to invite the Government of Great Britain to join in the formation of an international commission, to be composed of three members from the United States and three who shall represent the interests of the Dominion of Canada, whose duty it shall be to investigate and report upon the conditions and uses of the waters adjacent to the boundary lines between the United States and Canada, including all of the waters of the lakes and rivers whose natural outlet is by the River St. Lawrence to the Atlantic ocean ; also upon the maintenance and regulation of suitable levels, and also upon the effect upon the shores of these waters and the structures thereon, and upon the interests of navigation by reason of the diversion of these waters from or change in their natural flow ; and, further, to report upon the necessary measures to regulate such diversion, and to make such recommendations for improvements and regulations as shall best subserve the interests of navigation in said waters. The said Commissioners shall report upon the advisability of locating a dam at the outlet of Lake Erie, with a view to determining whether such dam will benefit navigation, and if such structure is deemed advisable, shall make recommendations to their respective governments looking to an agreement or treaty which shall provide for the construction of the same, and they shall make an estimate of the probable cost thereof. The President, in selecting the three members of said Commission who shall represent the United States, is authorized to appoint one officer of the corps of engineers of the United States Army, one civil engineer well versed in the hydraulics of the great lakes, and one lawyer of experience in questions of international and riparian law, and said Commission shall be authorized to employ such persons as it may deem needful in the performance of the duties hereby imposed ; and for the purpose of paying the expenses and salaries of said Commission, the Secretary of War is authorized to expend from the amounts heretofore appropriated for the St. Mary's river at the Falls the sum of twenty thousand dollars, or so much thereof as may be necessary to pay that portion of the expenses of said Commission chargeable to the United States.'

3. The invitation here authorized was duly communicated to the Government of Great Britain by the American Ambassador in London by letter dated July 15, 1902 (copy appended, marked 'A,' page 16), and was accepted by letter from the British Foreign Office, dated June 2, 1903. The American members were appointed October 2, 1903 ; they were Colonel O. H. Ernst, Corps of Engineers, United States Army ; Mr. George Clinton, of Buffalo, N.Y., and Prof. Gardner S. Williams, of Ithaca, N.Y. The Canadian members were appointed on January 7, 1905; they were Mr. W. F. King, Chief Astronomer, of Ottawa ; Mr. J. P. Mabee, K.C., of Toronto, and Mr. Louis Coste, C.E., of Ottawa.

4. The American section held its first meeting in Washington, D.C., May 10, 1905, and organized by the election of Colonel Ernst as chairman. The scope of the investigations to be undertaken was defined in a letter from the Department of State, dated April 15, 1905 (copy appended, marked 'K,' page 19), from which the following is an extract, viz. :—

'The wording of the law will be seen by reference to the inclosed copy. The department's opinion is that the words "including all of the waters of the lakes and rivers whose natural outlet is by the River St. Lawrence to the Atlantic ocean," are intended as a limitation on what precedes them, and that the investigation and report should only cover such waters, omitting the lower St. Lawrence itself, as well as all other waters not discharging naturally through it.

'The broader interpretation given to the Act by the Canadian authorities should be rejected, if for no other reason, on account of the smallness of the appropriation for the support of the American section. Congress could hardly have intended to provide, with a sum of $20,000, for the expenses incident to an investigation extending to the Pacific coast, and possibly embracing the Alaskan boundary as well.'

It was learned informally that the British government objected to this limited interpretation of the law and had requested a reconsideration of the question, and that the matter had been referred to the Attorney General. In a conference with the Honourable Secretary of War, it was decided that the work of the commission should be under the War Department. It was also decided to invite the Canadian members to join in the first full meeting of the commission in this city, to be held May 25, and an invitation was issued accordingly by the Department of State at the request of the Secretary of War.

5. On May 25 the full commission held its first meeting in this city, and organized by the election of Colonel Ernst as chairman of that meeting, it being agreed that at meetings of the full commission held on American territory the chairman of the American section should preside, and at meetings held on Canadian territory the chairman of the Canadian section should preside. The commission remained in session during the 25th and the following day, discussing the organization, permanent place of meeting, and scope of their duties. It was decided that for the present the offices of the Canadian section should be established in Toronto, and those of the American section in Buffalo, and that full meetings should be held in one or the other city, as should be found most convenient.

6. The American section, having presented the instructions under which they were acting, quoted above, the Canadian section presented the following memorandum, viz. :—

'The Canadian members of the International Waterways Commission had understood the scope of the commission to be wider than the American members regard it, and that any misunderstanding may be avoided desire briefly to state the position they have understood matters to be in.

'The invitation to His Majesty's government, through the American Ambassador in London, was "for the appointment of an international commission, to be composed of three members from the United States and three who shall represent the Dominion of Canada, whose duty it shall be to investigate in general the waters adjacent to the boundary line between the United States and Canada, the effect upon the shores produced by changes in the water levels, and the erection and location of a dam at the outlet of Lake Erie."

'In due course, by a report of the Committee of the Privy Council of Canada, approved by the Governor General of Canada, it was resolved "that His Majesty's government accept the invitation to co-operate in the formation of the commission." This report, after further reciting that as the subjects to be dealt with pertained to "the regulations of the waters adjacent to the international boundary," the matter, in so far as Canada was concerned, should be under the Department of the Interior and the Department of Public Works.

'Some regrettable but unavoidable delay in completing the Canadian section of

the commission arose by the long-continued illness of the Honourable the Minister of Public Works for Canada.

'In the despatch to the government of Great Britain naming the American Commissioners, the invitation to His Majesty's government is again recited as being one to form an international commission to investigate and report upon the conditions and uses of the waters adjacent to the boundary lines between the United States and Canada.

'After the appointment of the Canadian Commissioners, the Prime Minister of Canada, Sir Wilfrid Laurier, in communicating the matter to the Canadian House of Commons, in January last, dealt with the subject-matter of the commission as covering all waters adjacent to the boundaries of the two countries, and in the course of his speech made the following statements: "In sections of the country where the boundary is not water, but land, there are streams and large rivers which have their sources in one country and which flow into another. Complaint has been made by the United States that Canadians have constructed some works upon rivers which have their sources in Canada and which flow into the United States, and that these works affect the flow of the waters in their country. We also have made complaints to the United States that Americans have constructed upon some rivers, the St. John river, for instance, works which affect the flow of the waters in our country. It is, therefore, to the mutual interest and advantage of both countries to have this question properly investigated with a view of having concurrent legislation, if such should be found necessary. From olden times it has been a principle of Roman law, which has been adopted by most civilized nations, that the riparian owner of any stream has the right to use the water of that stream for his own benefit, provided he does not impair the flow of the water beyond the boundary of his property. This is a principle of law which dominates in almost every country; but it is not possible to have this principle followed and carried out when the works are in one country and the boundary of the property is in another country. For these reasons we have thought it advisable to respond to the invitation of the United States to have this question investigated. We have agreed to a commission to be composed of six members, three to represent the government of the United States and three to represent the government of Canada."

'If the inquiries of the commission are to be limited to the waters of the Great Lakes only, it would seem that the government of Canada has been under misapprehension as to the desires and intentions of the government of the United States, and we regard it as our duty to report to our government the limitations expected to be placed upon the scope of the commission, and we respectfully suggest that further action should be delayed until we may be advised of the views of the government of Canada upon the premises.'

7. The chairman of the American section stated that he was informed that the British government had communicated with the American government, through diplomatic channels, requesting that the broader interpretation above described be given to the law of congress providing for the commission, and that the American government then had the matter under consideration, but that some days would probably elapse before a decision could be expected. It was then decided that further proceedings be deferred until further instructions be received from the two governments. It was agreed that the decision of the American government should be communicated to the chairman of the Canadian section as soon as received, and that if it be favourable to the Canadian interpretation of the law, or if it be unfavourable, and be accepted by the Canadian government, then a meeting of the commission should be called on Canadian territory by the chairman of the Canadian section at as early a date as the other duties of the members would permit.

8. The decision of our government was given in a letter dated May 31, 1905, from the Department of State to the British Ambassador at this capital (copy appended, marked 'E' page 17), and was in effect to leave the instructions to the American members unaltered. It was immediately communicated to the Canadian section by letter, dated June 2, 1905 (copy appended, marked 'R,' page 27), and was by them

laid before the Canadian government, which government, after due consideration, authorized the Canadian members to proceed with the work of the commission within the field prescribed to the American members. See letter from the chairman of the Canadian section, dated June 7, 1905 (copy appended, marked 'S,' page 27).

9. The American section then proceeded to complete its organization. Through the courtesy of the Honourable Secretary of the Treasury, excellent quarters in the Federal Building, in Buffalo, were assigned to its use, completely furnished and arranged with temporary partitions to suit its convenience in every respect. These rooms became available September 11. The section was fortunate enough to secure the services, as secretary, of Mr. L. C. Sabin, a hydraulic engineer of many years experience on the Great Lakes in the service of the government. He reported for duty August 1. Professor Williams, finding that business engagements, contracted since his appointment in October, 1903, would interfere with his performance of duty as a member of the commission, tendered his resignation, and was replaced by Mr. G. Y. Wisner, civil engineer, appointed June 8, 1905.

10. The full commission held its second meeting at Toronto, June 14 and 15, 1905. Among the questions brought to the attention of the commission at this meeting were the following, viz.:—

(*a*) The uses of the waters at Sault Ste. Marie for power purposes, and the regulations necessary to insure an equitable division of the waters between the two countries and the protection of the navigation interests.

(*b*) The uses of the waters in the Niagara river for power purposes, and the regulations necessary to insure an equitable division of the waters between the two countries, and the protection of Niagara falls as a scenic spectacle.

(*c*) The alleged differences in the marine regulations of the two countries with respect to signal lights, and the advisability of adopting uniform signals for both countries.

(*d*) The advisability of building controlling works at the outlet of Lake Erie, including the effect upon the levels of the lakes and upon their shores, and upon the River St. Lawrence.

(*e*) The diversion southward by the Minnesota Canal and Power Company, of Duluth, of certain waters in the state of Minnesota that now flow north into the Rainy river and the Lake of the Woods.

(*f*) The effect of the Chicago Drainage canal upon the levels of Lake Michigan, Huron, Erie and Ontario, and upon the River St. Lawrence.

(*g*) Deliminating the international boundary on the international waterways and delineating the same on modern charts.

11. At subsequent meetings the following additional questions were brought to the attention of the commission, viz.:—

(*h*) The suppression or abatement of illegal fishing on the Great Lakes.

(*i*) The location and construction of common channels.

(*j*) Regulations to govern navigation in narrow channels.

(*k*) Protection of shores from damages due to deepening of channels and increased speed.

12. It was immediately evident that, in addition to collecting the data known to exist bearing upon these questions, it would be expedient for the commission to make its existence known to the persons most interested in the international waterways, to receive suggestions from them, and to visit in person some or all of the principal localities concerned, giving public hearings where such hearings were desired by the local business interests.

13. On July 7 the commission paid a visit of courtesy to the Canadian government, at Ottawa, and were the recipients of many graceful attentions from the authorities. Between July 9 and 13 the commission passed over the St. Lawrence river and canals from Quebec to Kingston, using the steamer *Frontenac,* kindly placed at their disposal by the Canadian government. During August, a majority of its members visited the Detroit, St. Clair and St. Marys rivers, and the Sault Ste. Marie.

Between September 11 and 14, the full commission made an inspection of the outlet of Lake Erie, including Buffalo harbour and Niagara river above the falls, and of the water-power development at Niagara falls. Public hearings were held at Montreal, July 11; at Kingston, July 13; at Niagara Falls, September 14; at Toronto, September 15; at Hamilton, Ontario, September 16; and at Buffalo, November 10.

14. The meetings of the full commission were held at Buffalo, October 27 and 28, and November 10 and 11. To enable all persons to appear before the commission or to address it, who desire to do so, public notice of all meetings is given as long in advance as possible, through the press of the principal cities of the Great Lakes and St. Lawrence system.

15. Of all the questions brought to the attention of the commission, those most pressing for consideration were the questions relating to the uses of water at the Sault Ste. Marie. The situation there, in brief, is this: The volume of water flowing out of Lake Superior is, at normal low water elevation 601, about 64,000 cubic feet per second. Lower stages and a lower discharge have sometimes occurred. On either side of the rapids is a navigation canal, constructed by the United States and Canadian governments respectively.

The traffic through these canals has reached enormous proportions, and is increasing. It is larger this year than ever before, and will greatly exceed 40,000,000 tons for the year. The quantity of water consumed in the operation of the canals during the eight months of navigation is about 1,200 cubic feet per second. The quantity required in the future will be greater. Not less than 4,000 cubic feet should be unconditionally reserved for canal uses, and in granting power privileges, the respective governments should not forfeit the right to increase the amount indefinitely. It may be remarked, in passing, that raft navigation over the rapids has so greatly diminished and it is now so small in amount that the quantities of water above mentioned will suffice to provide for it. This leaves about 60,000 cubic feet which may be temporarily used for power purposes.

16. On the Canadian side the Lake Superior Power Company has a power canal in operation which has a capacity of about 9,000, and is using about 7,000 cubic feet per second. This company has designed an additional canal, not yet constructed, which will have a capacity of about 23,000 cubic feet per second. On the American side the Michigan Lake Superior Power Company has in operation a power canal, which has a capacity of about 31,000, and is using about 8,500 cubic feet per second. This canal takes the water from the St. Marys river above the rapids, conducts it through the city of Sault Ste. Marie, Michigan, and empties it about a mile below the rapids. On the American side also the Chandler-Dunbar Company, owning a portion of the shore line adjoining the rapids, have in operation power works using about 1,400 cubic feet per second. This company is engaged in altering and improving its works in the bed of the stream, under revocable permits from the War Department.

Under permits thus far granted, the consumption of water will be increased to about 3,000 cubic feet per second, but in March, 1902, the company applied for a permit to build a dike downstream from the fourth pier, counting from the American side of the international bridge in a direction nearly parallel with the shore, to connect with a power-house extending out an equal distance into the stream. A rival company, the St. Marys Power Company, applied in March, 1903, for permission to construct a power canal by means of two parallel dikes extending downstream and a short distance upstream, from the third and fifth piers of the bridge, with corresponding power-house. Neither of these latter requests was granted, but they show what the intentions of the companies are, if they be permitted to carry them out. Evidently there is not water enough to carry out all of these schemes. An understanding must be reached by which there shall be an equitable division of the surplus water between the two sides of the boundary. The division between rival companies, fortunately for the commission, may be left to the courts of law.

17. The applications to the War Department of the United States from the American companies for further privileges and an application from the Lake Superior

Power Company to the Canadian government for additional authority, led the commission, at its session of October 28, to pass the following resolution, of which copies were sent to the Secretary of War of the United States and the Minister of Public Works of Canada, viz. :—

'Resolved, That in the opinion of the commission, no further rights or privileges should be granted or conferred regarding the uses or diversions of the water flowing out of Lake Superior, by either the government of the United States or Canada, until all data and information are in the hands of the commission that may be necessary to enable it to make suggestions for regulating the excess of these waters, or that, if such rights or privileges be granted, they be subject to any regulations that may be adopted by both governments.'

18. The use of water for power purposes must be so regulated as not to affect injuriously the level of Lake Superior. On the one hand, the level must never be allowed to fall so low as to injure navigation ; and on the other hand, it must never be raised so high as to submerge the shores.

19. The Act of congress, approved June 13, 1902, authorized the Michigan Lake Superior Power Company to divert water from St. Mary's river above the rapids, with certain conditions, among which is the following, viz.:—

'And conditioned further, that said company shall establish, maintain, and operate suitable and sufficient remedial and controlling works in the rapids of said river, to the approval of the Secretary of War and the Chief of Engineers ; and said company shall maintain and operate said canal and works in accordance with any rules and regulations that may hereafter be recommended by any international commission and that shall become operative."

A full copy of the proviso will be found at page 8. In this legislation the principles were recognized that the use of the water was not granted in any fixed quantity nor for any fixed length of time, but that the Secretary of War could enter upon the property and close the canal in whole or in part at any time to the extent necessary to maintain water levels; also, that it should finally be regulated by an international commission.

In granting permission to the company under this Act to divert water, the Secretary of War established, December 2, 1902, certain regulations (copy appended, marked 'T,' page 28), which are still in force and which will probably be used by this commission as a foundation in framing the regulations to be recommended. The fundamental principles on which they are based, and which this commission believes to be sound, are. (1) levels must be maintained; (2) navigation must be protected ; (3) the public must reserve the right to use any portion or all of the natural flow in the future.

20. A public hearing at which the parties in interest were given an opportunity to be heard, was held in Buffalo, November 10, and at its session of November 11, 1905, the commission tentatively adopted certain rules and regulations, which it is hoped can be forwarded for approval at an early day.

21. The enforcement of these rules and regulations calls for the executive action from time to time of an international commission. The enforcement of rules to be established hereafter at other places or upon other subjects will probably likewise require joint executive action. It is not clear from the language of the law creating this commission that congress intended to provide for a permanent international board. It is desirable that the status of the present commission as a permanent executive board be defined or a new board be created.

22. The questions which have been brought to the attention of this commission, enumerated above in paragraphs 10 and 11, cover a wide range of subjects. Some of them clearly come under the jurisdiction of the commission as constituted, while some do not, and about others there is room for doubt. The Canadian members of the commission are ready and anxious to consider all of these questions and to extend the jurisdiction of the commission to all international waters between the Atlantic and

Pacific oceans. It is desirable that the wishes of congress in this matter be more clearly defined.

23. Since it completed its organization in September, the commission has made good progress in the collection of data bearing upon some of these questions, particularly those relating to the use of water at Niagara Falls, and to the regulation of the level of Lake Erie by works near its outlet. With reference to the former, although not ready to report, it thought proper to pass, at its session of October 28, the following resolution, of which copies were sent to the Secretary of War of the United States, and the Minister of Public Works of Canada, viz. :—

'Resolved, That this commission recommends to the governments of the United States and Canada that such steps as they may regard as necessary be taken to prevent any corporate rights or franchises being granted or renewed by either Federal, State or Provincial authority for the use of the waters of the Niagara river for power or other purposes, until this commission is able to collect the information necessary to enable it to report fully upon the 'conditions and uses' of those waters to the respective governments of the United States and Canada.'

24. To enable it to continue its investigations, an additional appropriation will be required.

Very respectfully,

(Signed) O. H. ERNST, *Chairman, American Section.*
(Signed) GEORGE CLINTON,
(Signed) GEORGE Y. WISNER, *Members, American Section.*

Hon. Wm. H. Taft, Secretary of War, Washington, D.C.

SECOND INTERIM REPORT OF THE CANADIAN SECTION OF THE INTERNATIONAL WATERWAYS COMMISSION.

OTTAWA, ONTARIO, April 25, 1906.

Honourable C. S. HYMAN,
Minister of Public Works,
Ottawa, Ont.

SIR,—The Canadian members of the International Waterways Commission have the honour to submit the following report:—

At the last joint meeting of the International Waterways Commission, held in Toronto, on March 6 and 7, 1906, the chairman of the American section presented the following letter:

DEPARTMENT OF STATE,
WASHINGTON, February 13, 1906.

The Honourable Secretary of War,

SIR,—Several months ago the State Department and the British Ambassador took up the subject of a possible treaty between the United States and Great Britain relating to the use of the waters of the Niagara river and the preservation of the falls.

On November 13, the ambassador transmitted to the department a report of the Canadian Privy Council approved November 2, 1905, to the effect that a report from the Canadian section of the Waterways Commission stated that the commission was studying the subject, and expected to be able to make a joint report to the government of the United States and to the government of Canada before long, recommending the adoption of rules and regulations which would prevent, in the future, the destruction of Niagara falls by the use of its waters by manufacturers.

In the report of the American section, made to the Secretary of War on December 1, 1905, occurs the following statement: 'The commission have made good progress in the collection of data bearing upon some of these questions, particularly those relating to the use of water at Niagara falls.'

On October 20, 1905, the commission appears to have adopted the following resolution:

'Resolved, that this commission recommends to the governments of the United States and Canada that such steps as they may regard as necessary to be taken to prevent any corporate rights or franchises being granted or renewed by either federal, state or provincial authority, for the use of the waters of the Niagara river, for power or other purposes, until this commission is able to collect the information necessary to enable it to report fully upon the "conditions and uses" of those waters to the respective governments of the United States and Canada.'

The negotiation relating to a treaty on this subject has been suspended awaiting the further report of the commission, in accordance with the statements to which I have referred. There are many indications of active public interest in this subject, and a joint resolution having in view the preservation of the falls, pending in the House of Representatives, has been favourably reported by the Committee on Rivers and Harbours. The indications are that if an agreement can presently be reached between the two countries as to the action necessary to accomplish the purpose, any legislation to give the agreement effect on the part of the American authorities would

receive favourable consideration at the present session of Congress and at the present session of the New York legislature.

It seems desirable, therefore to press forward the negotiations for such an agreement without any avoidable delay. May I ask you to make such a report upon the subject as may furnish a basis upon which the State Department and the ambassador may take and proceed with the negotiation?

I have the honour to be, sir,
Your obedient servant,
ELIHU ROOT.

The American section then urged that the question of the preservation of Niagara falls be taken up, before all other subjects, as being more immediately pressing.

The commission spent two days considering the details of a report upon the conditions at Niagara falls. When the commission had partly agreed upon the facts, a series of recommendations was suggested by the American section, to the effect that a treaty be concluded between the two countries, wherein it should be agreed to preserve for all time the scenic beauty of Niagara, by pledging each country to cancel all charters, other than those under which works had been actually constructed, and by agreeing to prohibit all other diversion of water which is naturally tributary to Niagara falls, except such as may be required for domestic use and for the service of locks in navigation canals.

The Canadian section opposed any hasty action, and an adjournment was made until April 26, at Washington.

Intimation was given at the meeting that unless the Joint Commission was prepared to report promptly, the American section might be called upon to give an independent report, in compliance with the following resolution which had been submitted to Congress:

'Resolved, by the Senate and House of Representatives of the United States of America, in Congress assembled, that the members representing the United States upon the International Commission, created by section four of the River and Harbour Act, of June 13, 1902, be requested to report to Congress at an early date what action is, in their judgment, necessary and desirable, to prevent the further depletion of water flowing over Niagara falls; and the said members are also requested and directed to exert, in conjunction with the members of the said commission representing the Dominion of Canada, if practicable, all possible efforts for the preservation of the said Niagara falls in their natural condition,' and that in that case, it was likely that action would be taken looking to the negotiation of a treaty without further reference to our Joint Commission, and on March 19, the American section made a report to the Secretary of War, which has been transmitted to Congress by the President of the United States, by message, dated March 27 (copy of which is hereby appended, marked 'A').

In order that you may understand the situation, we desire to give you a short summary of the facts and conditions, as they now present themselves to us:

The volume of water discharged at Niagara falls varies from 180,000 cubic feet per second at low stage of Lake Erie, to 280,000 cubic feet per second at high stage of the lake, the mean discharge being 222,400 cubic feet per second at mean level of Lake Erie (elevation 572·86).

There are now five companies engaged in furnishing, or preparing to furnish, electricity, two located on the American side and three on the Canadian side of the river, above the falls.

The American companies, when in full operation, will develop about 340,000 horse-power, and use about 26,400 cubic feet of water per second, while the companies on the Canadian side, will have a capacity in all, of about 415,000 horse-power, and use about 32,100 cubic feet of water per second; the result being that from 27 to 33 per

cent of the total volume of water which would otherwise go over the falls will be used for power purposes.

It is conceded by the American section that as the diversions of water on the Canadian side are made at or below the crest of the rapids, they do not affect, in any degree, the flow over the American fall.

The opinion of experts is that when these works are in full operation, while there will be a noticeable diminution of the water flowing over the falls, it will not have the effect of destroying or seriously impairing the scenic beauty of the falls; indeed, our own engineer is of the opinion that while the limit of development has been reached, even exceeded on the American side, a considerably larger use could be made for power development on the Canadian side, without injury to the falls. With this latter contention, the American engineer does not now agree. Both, however, are of the opinion that this latter question can be much more definitely and properly settled when the consequence of the present developments has become apparent.

Both the companies whose works are on the American side of the river, viz.: The Niagara Falls Hydraulic Power and Manufacturing Company, and the Niagara Falls Power Company, will distribute all their power in the United States. Two of the companies on the Canadian side, viz.: The Canadian Niagara Power Company, and the Ontario Power Company, intend using a large part of their power on the American side. In fact, the former has laid a wire on the traffic bridge, immediately below the falls, and intends laying wires across the river between Fort Erie and the city of Buffalo. The latter company has laid wires across the river at a point above Lewiston, known as the Devil's hole. Neither of these two companies has made any serious effort to distribute its power in Canada. The third company, the Electrical Development Company, are erecting transmission lines as far as Toronto, and intimate their intention to build other lines to supply the western section of the province as far as London.

The Cataract Power Company, who take their water from the Welland canal and use the escarpment at DeCew's falls, is the only other company operating in the same section; they are at present developing about 14,000 horse power, and use 600 cubic feet per second. This company, together with the Electrical Development Company, can supply all the immediate Canadian demand.

The only condition in the agreement between the Park Commissioners and the three companies operating on the Canadian side at the falls, relating to exportation of power, is as follows:—

'(II.) The company, whenever required, shall, from the electricity or pneumatic power generated under this agreement, supply the same in Canada (to the extent of any quantity not less than one-half the quantity generated), at prices not to exceed the prices charged to cities, towns and consumers in the United States, at similar distances from the Falls of Niagara, for equal amounts of power and for similar uses, and shall whenever required by the Lieutenant Governor in Council, make a return of prices charged for such electricity or power, and if any question or dispute arises involving the non-supply or prices of electricity or power for consumption in Canada, the High Court of Justice of Ontario shall have jurisdiction to hear and determine the same and enforce the facilities to be given or the prices to be charged.'

It will be seen that this provision, possibly, does not afford much protection; the companies themselves will not be inclined to build transmission lines in Canada while they have a much better market across the river, and no one on this side is at present in a position to demand power. The provision, in our opinion, creates, however, a moral obligation which your government should put itself in a position to enforce. At present, necessarily, if these companies are to be made to pay dividends they must sell their power where there is a market for it; so that to entirely refuse to allow them to export would be ruinous to them and not justified by the existing conditions. The Park Commission will receive a revenue of about $250,000 a year from the three com-

panies operating under agreements with them. This sum represents a very small proportion indeed of the yearly value of their franchises. It is estimated that the saving in cost of power at the point of production in favour of falling water over any other method is at least $25 per h. p. This benefit should be apportioned in a reasonable degree between the producing companies and the general public. It will be a misfortune if the companies holding Canadian charters are not restricted in their exportation by regulations distinctly understood and accepted, which will compel them to carry out the spirit of their agreements by distributing power in Canada as demand is created, at reasonable prices. In the opinion of this commission adequate returns for their investment can thus be secured to the companies, while at the same time the Canadian public will obtain great advantage from the use of their natural advantage.

If there was a market in our country for one-half the power that could be generated at Niagara, its value put into millions per annum would be startling, but there is no such immediate demand and it seems to your commission that the present purpose of all concerned will be best served by preserving Niagara falls and at the same time making such provisions as are necessary to insure to our people the benefit of all the cheap power required. If we keep ourselves in a position to control the distribution of the power generated on the Canadian side of the river it will enable us to supply the requirements of our people for years to come without any further development.

The Dominion Parliament has granted charters to three corporations which are still in force, viz.: The Niagara Welland Power Company and the Jordan Light, Heat and Power Company, organized for the purpose of diverting water from the Welland river, which water would be taken from the Niagara river by back flow, and the Erie and Ontario Power Company, which would take its water from the Grand river and Lake Erie. These companies seem to be unlimited as regards the quantity of water that they may use or the power they may generate.

Quite irrespective of the question of injury to Niagara Falls the charter granted to the Erie and Ontario Power Company is subject to the further serious objection that its operation would have the effect of lowering the level of the water in Lake Erie.

As we already have at Niagara and DeCew's falls a development three times the Canadian demand it would seem to be the sheerest folly to increase the development until our own market requires it. It is very little advantage indeed to this country to develop power which is to be transmitted to the United States. We are, therefore, of opinion that it would be wise to enter into an arrangement with the United States, limiting the amount of water to be used on the Canadian side at Niagara river and elsewhere on the Niagara peninsula to 36,000 cubic feet per second. This will permit of the completion of the works now in operation on the Niagara river to their fullest capacity. It will also permit the Cataract Power Company to continue its operations and will give us a few thousand cubic feet per second for additional developments.

At Chicago, the Americans have built a drainage canal which, when in full operation, will use about 10,000 cubic feet of water per second.

The quantity of water required for the purposes of a ship canal is comparatively small, but the character of this drainage canal at Chicago is such as to involve a continuous flow of water which will have the effect of lowering Lake Michigan by over six inches, and Lake Erie by four and one-half inches. The nature of this work may be judged when we state that the expenditure will be some forty million of dollars, and that power works are in course of construction on the canal which will generate some 30,000 h. p.

As the diversion from Lake Michigan to the Mississippi river is of a much more serious character than the temporary diversions from the Niagara river, it is felt that the amount of water to be taken on the American side of the Niagara river should be limited to 18,500 cubic feet per second.

But, in the opinion of your commission, the preservation of Niagara falls is a minor matter as compared with the preservation of the interests of navigation on the Great Lakes.

Lake Erie, as you know, is a shallow lake and the navigation interests already represented by capital investments of one thousand million of dollars are very much alarmed and are very insistent that the interests of navigation should be paramount and that there should be no further diversion whatever for power purposes which will interfere in any way with the mean level of the lakes. On the other hand, the demand for the use of power is growing every day and the time has come when it is absolutely essential that some dominant hand should intervene as between these conflicting interests and settle how and when, if at all, diversion is to be allowed of these boundary waters for power purposes.

It is exceedingly important in the interests of navigation, both to ourselves and the people of the United States, that the diversion by way of the Chicago drainage canal should be limited. It is equally essential in the interests of both countries that no diversion or interference should be allowed in streams crossing the boundary which would interfere with the interests of navigation in either country. It is all important that while we are settling the policy as to Niagara falls we should at the same time establish certain principles which shall be applied in settlement of all classes of dispute which can arise between the two countries with regard to the use of boundary waters or of streams which cross the boundary from one country to the other.

If our proposal is carried out the diversions will be about as follows:—

DIVERSIONS ON THE AMERICAN SIDE.

	Per Second. Cubic Feet
Niagara falls	18,500
Chicago drainage canal	10,000
Total	28,500

DIVERSIONS ON THE CANADIAN SIDE.

	Per Second. Cubic Feet
Niagara falls and on the Niagara peninsula	36,000

It is quite apparent that no further diversions can be made on the Niagara river without injury to the scenic effect of the falls as a whole, and there should be no further diversion from Lake Erie or any other of the waters of the Great Lakes system which will be injurious to navigation. Your commission is, therefore, of opinion that the time has come when it is desirable to make a treaty limiting these diversions, and we have prepared a series of resolutions which we intend to submit at the next meeting of the joint commission, as follows:

Whereas, in the opinion of this commission it is desirable that the whole question of the uses and diversions of the waters adjacent to the boundary line between the United States and Canada, and the uses and diversions of all streams which cross the international boundary between the said countries should be settled by treaty,

Therefore, this commission recommend that a treaty be had between the United States and Great Britain, in framing which it should be recognized, that:

1. In all navigable waters the use for navigation purposes is of primary and paramount right, and therefore diversions should not be permitted which interfere with such use.

2. The Great Lakes system, on the boundary between the United States and Canada, and finding its outlet by the St. Lawrence to the sea, should be maintained in its integrity, and no diversions of water tributary to such streams should be permitted by either country, except as hereinafter provided.

3. Permanent or complete diversions of such waters are wrong in principle and should hereafter be absolutely prohibited. The diversions by the Chicago drainage canal should be limited to the use of not more than 10,000 cubic feet per second.

4. Diversions of international waters elsewhere than at Niagara river or the Niagara peninsula should only be permitted,

(*a*) For domestic purposes and for the service of locks in navigation canals.

(*b*) Temporary diversions, where the water taken is returned again, only on the recommendation of a joint commission; such diversions not to interfere in any way with the interests of navigation and to be allotted in equal proportions to each country and so that each may have a like benefit.

5. It should be declared to be a principle with relation to the use of all navigable rivers and streams crossing the international boundary that no obstruction or diversion should be permitted, either on such rivers or their tributary streams, which will interfere with navigation in either country.

6. As to the diversions from Niagara river and on the Niagara peninsula:

(*a*) In the opinion of this commission it would be a sacrilege to destroy the scenic effect of Niagara falls unless and until the public needs are so imperative as to compel and justify the sacrifice.

(*b*) It is possible to preserve its beauty and yet permit the development on the Canadian side of the Niagara river itself and elsewhere by diversions on the Niagara peninsula to Lake Ontario of water for power purposes to the extent of not more than 36,000 cubic feet per second, exclusive of water required for domestic uses, and for the service of locks in navigation canals.

(*c*) It is likewise possible to allow the diversion of waters for power purposes on the American side to the extent of 18,500 cubic feet per second, exclusive of the amount required for domestic uses, and for locks in navigation canals, without serious injury to the scenic aspect of the falls.

(*d*) Your commission are of opinion, therefore, that for the present the diversions should be limited to the quantities mentioned in subsections *b* and *c*.

(*e*) This would give an apparent advantage to Canadian interests, but, as the diversion is not of serious injury to the falls and does not materially affect the interests of navigation, it is more than counterbalanced by the complete diversion of 10,000 cubic feet by way of the Chicago drainage canal to the Mississippi river.

7. Magnificent as are the scenic effects of the falls of Niagara, the commercial value of the power which its waters can produce is so very great, and the future need may be so pressing, that, in the opinion of your commission, it will be sufficient that a treaty with regard to the diversions there should be limited to the period of twenty-five or thirty years.

8. As to non-navigable streams flowing in either direction across the international boundary line,, diversion for irrigation or other than 'innocent' uses, be allowed so that each country shall have an equal benefit from such diversions and that a joint commission shall have power to deal with and regulate such uses.

Suggestions have been made that the mean level of Lake Erie can be raised by the erection of a dam at the mouth of the Niagara river, but to this course strong objection is made by the parties in interest at Montreal and elsewhere who apprehend that the result would be to lower the level of Lake Ontario and the St. Lawrence river. It is admitted on all sides that if such will be the effect the work cannot go on. Your commission in due course will be able to report upon this important question.

Respectfully submitted,

(Signed) GEO. C. GIBBONS,
Chairman Can. Section.

(Signed) LOUIS COSTE,

(Signed) W. F. KING,
Members Can. Section.

(Signed) THOS. COTE,
Secretary Can. Section.

JOINT REPORT OF THE COMMISSION ON THE CONDITIONS EXISTING AT NIAGARA FALLS, WITH RECOMMENDATIONS.

BUFFALO, N.Y., May 3, 1906.

The Honourable, the Minister of Public Works of Canada, and the Honourable, the Secretary of War of the United States:

The International Waterways Commission has the honour to submit the following report upon the preservation of Niagara Falls:—

The commission has made a thorough investigation of the conditions existing at Niagara falls, and the two sections have presented reports to their respective governments setting forth these conditions, to which attention is invited. The following views and recommendations are based upon a careful study of the facts and conditions set forth in these reports:

1. In the opinion of the commission, it would be a sacrilege to destroy the scenic effect of Niagara falls.

2. While the commission are not fully agreed as to the effect of diversions of water from Niagara falls, all are of the opinion that more than 36,000 cubic feet per second on the Canadian side of the Niagara river or on the Niagara peninsula, and 18,500 cubic feet per second on the American side of the Niagara river, including diversions for power purposes on the Erie canal, cannot be diverted without injury to Niagara falls as a whole.

3. The commission, therefore, recommend that such diversions, exclusive of water required for domestic use or the service of locks in navigation canals, be limited on the Canadian side to 36,000 cubic feet per second, and on the United States side to 18,500 cubic feet per second (and in addition thereto, a diversion for sanitary purposes not to exceed 10,000 cubic feet per second, be authorized for the Chicago Drainage canal), and that a treaty or legislation be had limiting these diversions to the quantities mentioned.

The effect of the diversion of water by the Chicago Drainage canal upon the general navigation interests of the Great Lakes system will be considered in a separate report.

The Canadian section, while assenting to the above conclusions, did so upon the understanding that in connection therewith should be expressed their view that any treaty or arrangement as to the preservation of Niagara falls should be limited to the term of twenty-five years and should also establish the principles applicable to all diversions or uses of waters adjacent to the international boundary, and of all streams which flow across the boundary.

The following principles are suggested:

1. In all navigable waters the use for navigation purposes is of primary and paramount right. The Great Lakes system on the boundary between the United States and Canada and finding its outlet by the St. Lawrence to the sea should be maintained in its integrity.

2. Permanent or complete diversions of navigable waters or their tributary streams, should only be permitted for domestic purposes and for the use of locks in navigation canals.

3. Diversions can be permitted of a temporary character, where the water is taken and returned back, when such diversions do not interfere in any way with the

interests of navigation. In such cases each country is to have a right to diversion in equal quantities.

4. No obstruction or diversion shall be permitted in or upon any navigable water crossing the boundary or in or from streams tributary thereto, which would injuriously affect navigation in either country.

5. Each country shall have the right of diversion for irrigation or extraordinary purposes in equal quantities of the waters of non-navigable streams crossing the international boundary.

6. A permanent joint commission can deal much more satisfactorily with the settlement of all disputes arising as to the application of these principles, and should be appointed.

The American members are of opinion that the enunciation of principles to govern the making of a general treaty is not within the scope of their functions; moreover the jurisdiction of the American members is restricted to the Great Lakes system.

GEO. C. GIBBONS,
Chairman, Canadian Section.

W. F. KING,
Commissioner.

LOUIS COSTE,
Commissioner.

THOS. COTE,
Secretary, Canadian Section.

O. H. ERNST,
Colonel Corps of Engineers, U.S.A.,
Chairman, American Section.

GEORGE CLINTON,
Commissioner.

GEO. C. WISNER,
Commissioner.

L. C. SABIN,
Secretary, American Section.

REPORT ON THE CONDITIONS EXISTING AT SAULT STE. MARIE, WITH RULES FOR THE CONTROL OF THE SAME, RECOMMENDED BY THE INTERNATIONAL WATERWAYS COMMISSION.

Buffalo, N.Y., May 3, 1906.

The Honourable, the Minister of Public Works of Canada, and the Honourable, the Secretary of War of the United States:

The International Waterways Commission has the honour to submit the following report upon the conditions existing at Sault Ste. Marie, with rules for the control of the same.

Upon the organization of the International Waterways Commission, it found the most pressing matter coming within its jurisdiction was the regulation of the use by private corporations of the waters of St. Marys river in connection with the control of those waters for the protection of navigation at present, and in the future. The commission, therefore, proceeded to an investigation of the local conditions by special committee and the study of all data obtainable. After thorough consideration of all the information which could be obtained, and after hearing all parties interested in the use of the waters at Sault Ste. Marie, including navigation interests, the commission is satisfied that the rules recommended herein, governing the use, or interference with the natural flow, of those waters, will do entire justice to private interests, and, at the same time, fully protect commerce and navigation.

The extent of the commerce on the Great Lakes is well illustrated by the official statistics of the amount of freight which passed the locks at Sault Ste. Marie during the season of navigation in 1905, which amounted to more than forty-four million net tons. To this should be added the local tonnage, which is considerable, and the large traffic between ports on Lakes Michigan and Huron and the east, making a total lake traffic of between fifty and sixty million tons. The immense importance of transportation by the Great Lakes, and the consequent necessity of protecting and facilitating it in the interest of the public, becomes apparent when we consider that the ability to transport by lake must have resulted, during the season of 1905, in saving many millions of dollars. The average rate for transportation of Lake Superior freights in 1905 was $\$\cdot00085$ per ton-mile, while from the best information obtainable the transportation rate by rail between Lake Superior point and the east is not less than $\$\cdot004$ per ton-mile. The ton-mile saving over railroad transportation was, therefore, at least $\$\cdot00315$. The average haul of the freight mentioned was eight hundred thirty-three and three-tenths miles. The total number of tons of freight that passed the Sault locks in 1905 was 44,270,680, and it follows that in this year there was an aggregate saving through lake transportation on Lake Superior, through freight alone, of approximately $116,000,000. In other words, by transporting the Lake Superior freight on the Great Lakes, $116,000,000 were saved, in 1905, to the producers of raw materials, the manufacturer and the consumer, and the saving to manufacturers has made it possible for them to supply the home markets and compete in those of foreign countries.

The growth of commerce upon the Great Lakes in the past few years, and its prospective immense increase in the future, has convinced the commission that steps should be taken, not merely to preserve the lake levels, but to retain absolute control of all waters which go to maintain those levels, and of all lands which may be useful

or necessary, at present or in the future, to increase navigation facilities. The commission is, therefore, decidedly of the opinion that the governments of the United States and Canada should act in unison in controlling, absolutely, any and all diversions at Sault Ste. Marie, so that the waters of the river may be available at any time when needed for navigation.

ST. MARY'S RIVER.

Our investigation of conditions at Sault Ste. Marie developed the following facts:

The St. Mary's river forms the connecting channel between Lake Superior and Lake Huron. In its length of sixty-four miles the total fall has varied, in recent years, from 21 to 23 feet; of this total fall, from 18 to 20 feet is found in a distance of three-fourths of a mile at the Rapids at Sault Ste. Marie. The entire run-off of the Lake Superior drainage basin, having an area of 76,100 square miles, passes the St. Mary's river, giving an average discharge of about 70,000 cubic feet of water per second. As this river forms the only means of water communication between the important industries of the Lake Superior regious and the eastern markets, the advisability of its improvement for navigation purposes was early recognized. In 1855 the first canal and lock capable of passing lake vessels was completed, at a cost of about one million dollars. There were two tandem locks, each seventy feet wide, three hundred and fifty feet long, having a lift of about nine feet each, with a depth of eleven and one-half feet of water on the mitre sills. The great increase in the number and size of boats passing through the St. Mary's river necessitated the construction, in 1870, of the Weitzel lock. This lock, completed in 1881, and still in service, is five hundred and fifteen feet long, eighty feet wide in the chamber, and has about fourteen feet of water over the mitre sills at ordinary low water level.

The increase of lockage facilities did not accommodate the rapid increase in the size and number of vessels necessitated by the constant and great increase of the commerce which passed through the river, and as a result it became necessary to construct another lock on the American side. Accordingly what is konwn as the Poe lock, was built. It has a chamber eight hundred feet long, one hundred feet wide and a depth of about nineteen feet at ordinary low water.

It was supposed the Poe lock would accommodate the commerce of Lake Superior for many years. But it, together with the Weitzel lock and the Canadian lock, hereinafter described, has at times proved inadequate for proper despatch of the lake vessels passing the rapids, and it is quite evident that in the near future further lockage facilities must be furnished to meet the demands of commerce.

On the Canadian side of the river a lock nine hundred feet long, sixty feet wide, and having about nineteen feet of water on the mitre sills at ordinary low water, has been constructed. It was completed before the Poe lock. There are several vessels now navigating the lakes, which this lock cannot accommodate, their beam being 60 feet or more.

The improvement of the St. Mary's river below the locks has been almost continuous, and consists of the clearing of channels, and the construction of the so-called 'Hay Lake Channel.' An available depth of from 17½ to 19 feet, depending on the stage of water, has been obtained. At present the United States government is engaged in deepening the channels to a depth of 21 feet at low water, and in constructing a new channel through the West Neebish, which will furnish an additional passage connecting Hay lake with Mud lake. This channel will have a least width of 300 feet, and low water depth of 21 feet, or sufficient to accommodate all vessels now navigating the river. These improvements have cost the government of the United States about fourteen millions of dollars and the government of Canada about five millions.

The increase in the size of vessels navigating the lakes, has been rapid. In 1890, lake vessels reached a length of 300 feet, in 1896 400 feet, in 1902 500 feet, and six vessels 600 feet in length will be put in service during 1906. In 1904, there were only

forty boats in the Lake Superior trade, with a capacity of 8,000 tons or more, while thirty-two additional vessels will be in commission during 1906, none of which will have a cargo capacity of less than 8,000 tons. The combined cargo capacity of these thirty-two new boats will be about 338,000 tons for a single trip, and they will constitute an addition of about twenty per cent to the carrying capacity of the fleet engaged in the transportation of ore from Lake Superior.

The quantity of freight passing to and from Lake Superior has doubled twice in the past thirteen years, it being 44,270,680 tons in 1905, about four times what it was in 1892. The value of the cargoes passing the Sault canals in 1905 was $416,965,484; iron, including ore and manufactured iron, constituting twenty-seven per cent of this value, and cereals twenty-eight per cent.

It is estimated that the present lockage system is capable of giving what may be considered reasonably prompt service, if not required to pass more than fifty million tons during the season of navigation, but if called upon to pass more than sixty million tons, delays, which are not infrequent now, will become excessive, and cause great financial loss. In view of the past growth of this commerce, it is extremely hazardous to predict its extent in the future, but a conservative estimate indicates that before another lock can be completed the limit of traffic for prompt service will have been passed. In this connection we would call atention to the fact that the largest classes of boats existing, and now being rapidly built, are already restricted in carrying capacity on account of deficient available depth of water, and are subject to delays because not more than one of them can be passed through the largest lock at one time. In addition to this, many of the largest boats now navigating the lakes are limited to the use of the Poe, and the Canadian locks, on account of their size. The rate of increase in traffic and in the size of boats, in the future, judging from the experience of the past, and the predictions of those conversant with the subject, will make the present lockage system inadequate before lockage facilities can be increased. The loss, financially, which would result from not furnishing means of passage around the rapids adequate to the demands of commerce, or, in case of accident to any of the existing locks, from delay until repairs could be made, would be incalculable.

The canal leading to the American locks from the upper river is 4,200 feet in length, and has an average cross section of about 5,000 square feet. Its width at the narrowest part is only 108 feet, it being crossed at that place by the swing span of the International Bridge. The sides of this canal are frequently lined with vessels awaiting down passage when vessels are leaving the locks to pass into Lake Superior. The manœuvring of boats going in opposite directions in such a narrow passage is very difficult, and is accompanied by possibility of accident. The conditions are seriously aggravated by a strong current, which occurs in the canal whenever the locks are filled. Plans have been made by the United States government for enlarging this canal, doubling its width at the narrowest place, and increasing the width at other points. This would relieve the situation at present, but it is quite apparent that provision should be made for further widening, so that when a new lock shall have been constructed, two or more locks may be filled at the same time without creating a violent current. This will necessitate the acquisition of more land on the river side than is now owned by the United States.

The Canadian canal is about 6,000 feet long, from 143 to 156 feet wide, and something over 22 feet deep. The Canadian lock above mentioned is at the eastern extremity of this canal. The same general considerations apply to this canal and lock that we have presented in connection with the American canal and locks.

WATER POWER DEVELOPMENTS.

The development of the power of the St. Mary's rapids has been projected and carried on by practically two interests: the Chandler-Dunbar and allied interests, and the Lake Superior Corporation with its subordinate companies, the Lake Superior Power Company and the Michigan Lake Superior Power Company.

In 1883 Wm. Chandler was granted letters patent for a strip of land about 3,000 feet in length, lying along the north side of the St. Mary's Falls canal, adjoining the rapids on the American side of the river. In 1887 the Edison Sault Light and Power Company was organized for the purpose of developing water power at this point, and the following year a canal, about 2,200 feet long, was dug through this property, the power developed being used locally, largely for electric lighting. In 1889 a permit was granted the above company by the government of the United States to extend its tail-race by connecting the lower end of the embankment with Islnad No. 3, and in 1893 a permit was given for joining Islands Nos. 3 and 4, which lay in front of the lands owned by the United States, thus providing for a trail-race to enable the company to utilize a somewhat greater head than the fall naturally existing in front of the lands located by Mr. Chandler.

In 1892 a permit was granted by the Secretary of War to the Edison Sault Electric Company, the lessee of the Chandler-Dunbar Company, to build an embankment dam from the third pier of the international bridge, extending down stream. The completion of this dam or dyke provided a more commodious head race, and the water power developed has been increased since that time, as local needs demanded.

In 1901 this permit was modified to provide for the building of a new power house in front of the lands located by Mr. Chandler, and the construction of a new tail-race outside of Island No. 3, belonging to the United States, on condition that the company should 'abandon the tail-race, now used on the inside of Island No. 3, and relinquish to the United States all rights of the company between said island and the shore.'

In 1903 this permit was again modified so as to allow the company 'to build out into the rapids of St. Mary's river,' to remove the power-house and a portion of the embankment dam now in use, and to construct a larger power-house and longer wall to inclose a forebay, and to construct a wider tail-race. Work under this last permit was commenced in the spring of 1905, and is now in progress.

The available head of water on the present works is about 9 feet. The power developed by the turbines is about 750 horse-power. The amount of water used in this development is about 1,400 cubic feet per second, including leakage. The natural fall in the rapids in front of the shore holdings of the company was found to be about 9 feet, when it was measured in the fall of 1903.

The building, in 1892, of the dyke above mentioned, under permit of that year, obstructed the flow through the rapids under two spans of the international bridge, shutting off a water area about 1,915 square feet in cross section.

Work is now progressing under the permits granted by the War Department of the United States, and it is expected that a head of about 13 feet will be obtained, furnishing 4,700 mechanical horse-power by the consumption of 4,000 second feet.

The interests constructing these works claim the right to do so, not only under the permits granted, but, so far as the occupation of the bed of the rapids opposite the Chandler lands is concerned, by virtue of asserted riparian rights appurtenant to the ownership of the adjacent shore. In a litigation now pending, brought by the United States against the Chandler-Dunbar Water-Power Company in the western district of Michigan, the District Court has decided that the ownership of the shore lands carries with it the title to the bed of the river, including Islands Nos. 1 and 2, and from this it follows that the right to erect structures in the river to utilize the waters of the river for power purposes as it flows past the riparian owners' land exists, subject merely to the restriction that the structures must not, directly or indirectly, injuriously affect navigation.

The Lake Superior Corporation, through its subordinate companies, the Lake Superior Power Company, organized under the laws of the province of Ontario, and the Michigan Lake Superior Power Company, organized under the laws of the state of Michigan, has constructed canals on both sides of the river, with works for the development of power.

On June 30, 1888, 'The Sault Ste. Marie Water, Gas and Light Company,' was

incorporated on the Canadian side, under the Revised Statutes of Ontario, chapter 164. By Act of 1889, the name of the company was changed to 'The Ontario Water, Light and Power Company,' and it was given power to build dams across the inland channels or rapids of St. Mary's river or any branch thereof within the province of Ontario, and to construct such other works as might be necessary to supply them with the water needed for their operations, such rights to be exercised only with the consent of the Crown or the individual affected.

After partially completing a water-power canal, this company became financially embarrassed, and was not able to continue the undertaking.

In 1895, Francis H. Clergue and his associates took over the property of the old company, including franchises for supplying the town with electric lighting, water and street railway privileges. At the same time the name of the company was changed to 'The Lake Superior Power Company,' and in 1896 a portion of St. Mary's island opposite the rapids was granted to the company, in exchange for certain other lands in the town of Sault Ste. Marie, Ont. The Lake Superior Power Company also acquired other lands in the vicinity north of the Canadian ship canal, and at once began the development of water-power. 'The Consolidated Lake Superior Company' was formed in 1901 to consolidate and control the interests of this company, the Michigan Lake Superior Power Company, and many others, and in 1904, it was reorganized under the name of 'The Lake Superior Corporation.'

The canal of the Lake Superior Power Company is about 220 feet wide at the water line, and 12½ feet deep at the head gates, changing gradually to a prism 86 feet wide and 15½ feet deep at the power-house. The present plant is developing about 11,000 horse-power at the turbine shafts. The average amount of water used has been estimated at about 7,000 cubic feet per second, with a maximum of 8,000 cubic feet per second when all wheels are running at full capacity.

In building its works this company occupied the bed of a small stream, running between the islands on the north side of the river, having a water cross section estimated at 1,603 square feet. This company, with its allied company, the Michigan Lake Superior Power Company, to be described below, has also erected remedial works on the Canadian side of the river above the 9th and 10th spans of the international bridge, being the two spans nearest to the Canadian shore, making it possible to nearly stop the flow of water under those spans. The same company has projected a second canal of much larger capacity, work upon which has not been begun.

About 1887, the St. Mary's Falls Water Power Company began excavation for a canal through the town of Sault Ste. Marie, Michigan, from a point above the ship canal, to connect with the river below the locks. The company failed, and its right of way was purchased by the Michigan Lake Superior Power Company, incorporated under the laws of Michigan, one of the allied companies subsequently forming the Consolidated Lake Superior Company.

The Michigan Lake Superior Power Company has constructed a canal over two miles in length with a cross sectional area of about 4,300 square feet, extending from above the upper end of the St. Mary's Falls ship canal to a point about a mile below the locks, where it debouches into the lower river.

Pursuant to the provisions of the River and Harbour Act, approved June 13, 1902, the Secretary of War of the United States, under date of December 12, 1902, granted the Michigan Lake Superior Power Company a permit for the diversion of the waters of the St. Mary's river through its canal, subject to prescribed regulations, based upon the maintenance of proper water levels, including the erection of remedial works. The remedial works have been partially constructed, but owing to the fact that they have not been completed, and to the fact that repairs to the company's power-house and forebay are needed, the full capacity of the canal, 31,200 second-feet, is not used, 8,500 second-feet being the estimated amount actually utilized at present. The remedial works, so far as completed, are those above mentioned, partially covering the spans nine and ten of the international bridge on the Canadian side.

HYDRAULIC CONDITIONS.

The head of the canal at St. Mary's rapids is situated about fourteen miles below Point Iroquois, which may be considered the head of St. Mary's river. In this fourteen miles there is a fall of only about 0:4 foot. As this slope is so slight it is practically constant for all stages of water level, and the mean level of Lake Superior is directly affected by any changes in level that may occur in St. Mary's river above the rapids. The lowest monthly mean level of St. Mary's river above the locks, within the past thirty-three years, was in March, 1879, the level being 600:38 feet above mean tide at New York. Since that year it has never been below 601:0 feet during the months of the navigation season, May to November. Since 1893, there has been but one month during the navigation season when the mean level fell below 601:7 feet. Since 1876, the mean level has never been above 603:2 feet.

Previous to the building of the international bridge in 1887, the channel of St. Mary's river at the rapids consisted of the main channel and four small streams running between the islands near the Canadian side. At a water level of 601:7 feet, the cross sectional area of these streams previous to obstruction is estimated to have been about 13,452 square feet for the main channel, and 2,064 square feet for the small streams, giving a total area of section of 15,516 square feet. This cross section has been obstructed from time to time by the following works:—

In 1887 the international bridge was built across the rapids near the head. The piers in the rapids cut off an area of section of about 1,133 square feet. During the building of the bridge and subsequently, fills have been made near the ends of the bridge, causing a further obstruction estimated at about 1,139 square feet, including three of the small streams above mentioned, and making a total estimated area of section obstructed by the bridge of about 2,272 square feet.

The building, in 1889, of the canal subsequently purchased by the Lake Superior Power Company on the Canadian side, obstructed the fourth of the small streams mentioned above, estimated to have had an area of 1,603 square feet. Subsequently, this company, in connection with the Michigan Lake Superior Power Company, constructed remedial works across spans 9 and 10 of the bridge, span 10 being completely closed and span 9 being closed by stoney gates, which may be opened if necessary. The cross sectional area of span 10 so obstructed was about 724 square feet, and of span 9, 1,649 square feet, giving a total cross section of obstruction of 2,373 square feet for remedial works, or 3,976 square feet, if we include the small stream mentioned above.

The dyke built by the Chandler-Dunbar Water Power Company in 1892 closed the area under the first two spans of the bridge with a total water cross section of about 1,915 square feet.

The total area thus obstructed by all works amounts to 8,163 square feet, or more than one-half of the original cross section. The total area of cross section obstructed previous to the construction of the remedial works was 5,790 square feet.

The first effect of these various obstructions was to reduce the discharge of the river, although the flow through the channels not obstructed was somewhat increased. If no diversion were made, the discharge over the rapids being diminished, the mean water level would eventually rise to such a height as to give a discharge through the restricted cross section equal to that which would have taken place through the original cross section at the lower level. The elevation of the water surface would then fluctuate about this new higher mean level much the same as it did before about the lower mean level. The decrease in discharge, due to the obstructions mentioned above other than the remedial works, may be roughly estimated as follows for stage 601·7 feet:—

	Sec. Ft.
Flow intercepted by international bridge piers and fills	7,000
Chandler-Dunbar Company	7,500
Works of Lake Superior Power Company	4,500
Total	19,000

Since to determine the discharge of the river by observations from the international bridge, the section upon which most of the observations for discharge have been made, involves estimating the amount of water used by the locks and the several power companies, in order to arrive at the total discharge, the results of the discharge measurements are not always accordant. These observations for discharge have not extended over as wide a range of level as could be desired to give a good determination of the rate of change in discharge for change in stage. From a consideration of the published results, however, it appears that previous to the placing of the remedial works at spans 9 and 10 of the bridge, that portion of the discharge of the river passing the rapids alone was 66,500 second feet, at elevation 601·7 feet, and 80,400 second feet, at elevation 602·7 feet. If these discharges are correct, a rise in the water surface of one foot corresponds to an increase discharge of 13,900 second feet and the effect of placing obstructions cutting off 19,000 second feet would therefore be to eventually raise the mean lake level approximately 1·4 feet.

Only a portion, perhaps not more than half, of this obstruction, has actually been effective for the reason that it takes place slowly, and that the obstruction has not been complete since the channels have been replaced by the power canals, through which the water is allowed to pass.

As the result of observations of discharge made in 1899 and 1902 by the officers of the United States' Lake Survey, equations were determined representing the flow in the rapids, first: in spans 3 to 10, inclusive, or previous to the construction of the remedial works, above spans 9 and 10 on the Canadian side of the river, and second: in spans 3 to 8, inclusive, or after the remedial works were in place. From these equations, it appears that previous to the placing of the remedial works, the discharge at 601:7 feet was 66,485 cubic feet per second, and that with the remedial works in place, the discharge at this stage is 56,880 cubic feet per second, giving a diminished discharge, due to the placing of the remedial works of 9,605 cubic feet per second at this stage.

The total flow stopped by the obstructions placed by the various companies may then be summarized as follows for stage 601:7 feet :—

	Sec. Ft.
Bridge	7,000
Chandler-Dunbar Water-Power Company	7,500
Lake Superior and Michigan Lake Superior Company	14,100
Total	28,600

The present uses of water are estimated to be as follows:—

	Sec. Ft.
Government canals	600
Chandler-Dunbar Water-Power Company	1,400
Lake Superior and Michigan Lake Superior Power Company	15,500
Total	17,500

Previous to the placing of the remedial works of the Lake Superior Power Companies, above spans 9 and 10 of the international bridge, the discharge of the river at elevation 601:2 was probably about 61,000 second feet. Although the discharge may have fallen below this figure for a few months in years of low water, it may be taken as the ordinary low water discharge. Of this amount not less than 4,000 second feet

should be reserved for the use of locks and the passage of logs. The Michigan Lake Superior Power Company has a canal designed to take a maximum of 31,200 second feet, the Chandler-Dunbar Water-Power Company has works under construction designed to use 4,000 second feet, and contemplates still further development. The Lake Superior Power Company's present works are sufficient to use at least 9,000 second feet, and further development is contemplated, presumably to the extent of using one-half the surplus waters of the river.

It is apparent, therefore, that the actual present use of water for power purposes is nearly equal to the amount of flow obstructed by the works of all the power development companies considered as a unit, and it is clear that the amount of water required for the proposed additions to present power developments is so great as to call for complete control of such extensions by an international commission.

At present the duty of maintaining the water level above the rapids rests upon the Michigan Lake Superior Power Company ; the Act of Congress approved June 13, 1902, authorizing this company to divert water from St. Mary's river, with the consent of the Secretary of War, and the Chief Engineer, specifically provides that the level of Lake Superior shall be maintained at the expense, if need be, of the works of this company. With the knowledge that plans for enlarging the works of the power companies were projected, Congress, in the same Act, provided for an investigation of the conditions with a view to an agreement looking to international control and regulation. The commission has used the rules and regulations under which the Michigan Lake Superior Power Company was permitted by the Secretary of War, of the United States, to divert the waters of the St. Mary's river, as a basis for the new rules now recommended, adapting them to the wider application now necessary.

RECOMMENDATIONS.

The commission would respectfully recommend :

1. That no permits shall be granted for the use of the waters of the St. Mary's river, or for the erection of structures in, under or over, or the occupation in any manner of the said waters until plans have been submitted to the commission for its investigation and recommendation ; and the use of the waters under such permits shall not be allowed except upon compliance with the rules hereinafter recommended.

2. The commission further recommends that no grants, permits or concessions should be made, which directly or by operation of law, may, in any manner, affect the right of the United States or of Canada, to control the bed of the St. Mary's river, below high water mark, and especially that none should be made which, legally or equitably, may be the means of adding to the expense of acquiring lands or rights for the purpose of making improvements in aid of navigation, or which may give an equitable right to compensation in case of the removal of structures in said river.

3. That steps shall be taken to increase the lockage facilities at Sault Ste. Marie without unnecessary delay.

4. That the governments of the United States and Canada reserve all water necessary for navigation purposes, at present or in the future, and the surplus shall be divided equally between the two countries for power purposes.

5. As the commission regards the interests of the United States and Canada in the preservation of the lake levels, and in the improvement of the channels and the conservation of the water supply for purposes of navigation as identical and as incapable of efficient protection without joint and harmonious action on the part of the two governments, it recommends that the rules hereinafter set forth be adopted, and that a joint commission be created to supervise their enforcement, or that such powers be vested in the existing International Waterways Commission, subject to such restrictions and reservations as may be deemed advisable.

The commission has adopted unanimously the following resolution :—

Resolved, That this commission recommends to the Secretary of War of the United States, and the Minister of Public Works of Canada, the following rules to govern the use of water at the Sault Ste. Marie :

1. No person shall place any structure in, over or under the St. Mary's river, nor shall any person place any obstruction in said river, or make any excavation in the bed thereof, or divert water therefrom, until plans for the work shall have been submitted to an International Waterways Commission nor until consent shall have been given by the Secretary of War of the United States, and the Minister of Public Works of Canada. All work must be done in accordance with plans appproved by such commission, and subject to its supervision and inspection; and no water shall be used or diverted until the completed work shall have been approved by the commission.

2. Persons now using or diverting the waters of St. Mary's river for power purposes shall forthwith submit complete plans of all their works existing and proposed, and until such plans have been approved by the commission, they shall not use or divert the waters of said river in excess of the amount now actually used or diverted by them.

3. Plans for work contemplating the use or diversion of water, must include such remedial and controlling works as may be necessary to maintain levels. Such works must provide for (1), compensation equal to the amount of water to be used or diverted, (2), complete stoppage of flow through canals and works, (3), passage of the amount of water naturally flowing through the section occupied by the remedial works, (4), passage of logs over the rapids.

4. The level of St. Mary's river above the rapids, shall be maintained between the elevations 601·7 and 603·2 feet above mean tide at New York, according to the system of levels established by the United States government in 1903, and defined by a bench mark on the coping of the Weitzel lock at Sault Ste. Marie, Michigan, the elevation of which is 606,069. The approval of plans of works by the commission, and the consent of the Secretary of War and Minister of Public Works to construct works or to use or divert water, shall in no way relieve the owners and persons operating such works from the duty of maintaining said level.

5. Nothing herein contained shall be held to affect any existing riparian or other rights, or the existing remedies therefor, or any action at law or in equity now pending. All remedies herein provided shall be cumulative and shall be without prejudice to any other remedies for failure of persons operating under permits to maintain the levels for navigation purposes. Nothing herein contained shall be held to affect the exercise of the right of any executive officer of either the United States or Canada, acting under the laws of his respective country, to prevent the placing, or to cause the removal of any obstructions in St. Mary's river, or to otherwise preserve or restore the navigability of any part thereof.

6. Persons using or diverting the waters of St. Mary's river shall operate under the following regulations :—

(*a*) The general superintendent of St. Mary's Fall canal, under the orders of the engineer officer in charge on the American side, and a resident officer appointed by the Canadian government on the Canadian side, shall form a board whose duty it shall be to see that these regulations, and any others that may hereafter be made by proper authority, are duly obeyed. The officers of this board and their deputies shall have access to all the power works at any time, and all said power works, which terms includes canals, escape valves at the power houses, head gates and remedial works, shall be operated in accordance with the orders of the said board, and said board shall have power to assume entire control of said works, or any of them, whenever it considers such action necessary in the interests of navigation.

(*b*) Should the monthly mean level fall below 601·7 feet for any calendar month, the flow through the power works shall be reduced to such an extent as to restore the monthly mean level to 601·7. Should the monthly mean level remain below 601·7 feet for six consecutive months, all flow through the power works shall be stopped until the monthly mean level shall again be above 601·7 feet. Should the monthly mean level fall below 601·2 feet, all flow shall likewise be stopped until the monthly mean level shall again be above 601·2 feet.

(*c*) Should the monthly mean level rise above 603·2 feet, the flow through the power canals and remedial works shall be increased to their maximum capacity, and shall so continue until the monthly mean level shall be less than 603:2 feet.

(*d*) Should the power canals, remedial or controlling works be found not to be of the capacity to produce the regulation required, the persons using the water shall alter their works at their own expense as soon as possible, so as to allow more to flow, in a manner approved by an international commisison.

(*e*) Should currents detrimental to navigation be developed by the operation of any power works, the persons operating such works shall alter them or construct such other works as an international commission may consider necessary to remedy the evil, all in a manner to be approved by said commission.

(*f*) The board mentioned in regulation (*a*), shall have power to determine whether the conditions mentioned in any of these regulations have arisen to call for the application of said regulations, and its determination shall be final; and said board shall have power to apply to any power works such special regulations as they may deem necessary in the interests of navigation.

(*g*) If remedial works can be used for the passage of logs or rafts, the gates must be operated at the expense of the persons owning or operating the works whenever needed.

7. Wherever powers of officers are mentioned in these rules, it is understood that the governments of the United States and Canada reserve the right to vest such powers in, and confer others upon, other officers or the international commission.

8. It is further understood that the governments of the United States and Canada reserve the right to amend, add to, or abolish these rules or any of them by joint action and that they may vest the power so to do in the international commission.

9. In the event of any person subject to these regulations refusing or neglecting to obey, abide by, or conform to any ruling, direction or order of the commission, or of the board mentioned in regulatin (*a*), such commission or board may, through their officers, servants, or agents, at once shut off the supply of water to such person, or to take such steps to compel compliance with such ruling, direction or order as the commission or said board may deem proper.

10. Persons owning or operating power canals or works shall not be entitled to damage or compensation from the government of the United States or Canada in any case whatsoever, for any act or acts done by them or either of them, or by their officers or agents at any time, in executing or enforcing these rules, or in exercising the right to control or suspend the flow of water through canals or remedial works, or both, or in revoking or annuling any permits of grants which may have been or shall hereafter be issued or made to such persons.

11. For the purpose of construing these rules, the word 'person' or 'persons,' shall be taken as including natural persons, corporations, associations and partnerships, whenever they are used, but shall not include the government of the United States or that of Canada.

(Sgd.) GEORGE C. GIBBONS,
Chairman, Can. Sec.

(Sgd.) O. H. ERNST,
Chairman, Amer. Sec.

(Sgd.) W. F. KING,
Commissioner.

(Sgd.) GEORGE CLINTON,
Commissioner.

(Sgd.) LOUIS COSTE,
Commissioner.

(Sgd.) GEO. Y. WISNER,
Commissioner.

(Sgd.) THOMAS COTE,
Secretary, Can. Sec.

(Sgd.) L. C. SABIN,
Secretary, Amer. Sec.

JOINT REPORT ON THE APPLICATION OF THE INTERNATIONAL DEVELOPMENT COMPANY FOR PERMISSION TO CONSTRUCT REGULATING WORKS ON THE RICHELIEU RIVER.

BUFFALO, N.Y., November 15, 1906.

To the Honourable the Minister of Public Works of Canada, and to the Honourable the Secretary of War of the United States.

The International Waterways Commission has the honour to submit the following report on the application of the International Development Company for permission to construct regulating works in the Richelieu river, referred to it by endorsement of the Honourable Secretary of War of the United States, dated November 6, 1906.

The applicants are the assignees of a charter granted by Special Act of Parliament of the Dominion or Canada to the Lake Champlain and St. Lawrence Ship Canal Company (Statutes of Canada, 1898, chapter 107), which has been extended by two enactments, the last of which, in the year 1905 (Statutes of Canada, chapter 116), extends the time for commencing the works of the company to the year 1908.

No plans of the proposed works have been submitted, and it is understood that none have been made. The works are to be located in Canadian territory, and can be built only with the authority and approval of the Canadian government. It is supposed that proper plans will in due season be submitted to that government. The works will, however, affect the levels of Lake Champlain, and may thus seriously affect the navigation or property interests of American citizens on that lake. The company submits a preliminary statement showing in general what is proposed to be accomplished, and the supposed effect upon Lake Champlain, with a view to ascertain what the attitude of the United States government will be towards the enterprise, and it is that which has been referred to us.

It is ascertained from this statement that for navigation and power purposes a continuous flow of not less than 9,000 cubic feet per second is desired in the Richelieu river. The average annual flow is greater than this, being about 12,700 cubic feet per second. The low water discharge is about 3,800 cubic feet per second, and there are periods, sometimes extending over six or eight months, when the discharge is continuously less than 9,000. It is proposed to store up in Lake Champlain during the high water season enough of the surplus water to supply the deficiency during the low water season. For this purpose regulating works are to be constructed in the Richelieu river by which the level of Lake Champlain will be maintained at a minimum of 97 feet above tide at New York; and it is stated that these works will not under any circumstances raise the high water level of Lake Champlain above 'the present high water mark,' given as 101·5. Thus it is proposed to give the lake a range of 4·5 feet.

On page 324 of the report of the Board of Engineers upon deep waterways between the Great Lakes and the Atlantic tide waters is a tabular statement of the monthly mean discharge of Lake Champlain for the years 1875 to 1898, inclusive. An examination of this table shows that the period which gave the lowest discharge extended from September, 1882, to March, 1883; that which gave the next lowest extended from September, 1876 to March, 1877: that which gave the third lowest extended from September, 1883, to February, 1884; and that which gave the fourth lowest extended from August, 1894, to March, 1895. During these periods the amount flowing

was less than 9,000 cubic feet per second, and in order to maintain that flow it would have been necessary to draw, from water previously stored for the purpose, the difference between 9,000 cubic feet and the amount which actually flowed.

	Cubic feet.
The deficiencies for the first period were	58,803,840,000
Those for the second period were	55,572,480,000
Those for the third period were	51,278,400,000
Those for the fourth period were	46,759,680,000

The area of Lake Champlain is 436·7 square miles, or 12,174,497,280 square feet. The depth required to store the deficiency during the first of the above periods is 4·81 feet; that for the second period is 4·56 feet; for the third period it is 4·21 feet; and for the fourth period it is 3·84 feet. Adding 1·25 for evaporation in eight months, those depths become 6·06, 5·81, 5·46 and 5·09 respectively. The range proposed, 4·5 feet, will therefore not be sufficient to provide 9,000 cubic feet per second throughout the low water season in very dry years.

A range much greater connot be admitted without inflicting damage either upon the riparian owners or the navigation interests of Lake Champlain. In determining what is a proper high water and what a proper low water stage in this connection, it is not fair to take the extremes which the lake may have reached at long intervals in its history. A high water stage reached once in twenty years, for example, might inflict damage to property without destroying it, while if reached every year it might cause complete destruction ; likewise the obstruction to navigation caused by an extreme low water stage would be greatly multiplied if repeated every year.

The table on page 323 of the Report on Deep Waterways quoted above, gives the monthly mean stages of Lake Champlain from 1875 to 1898. The highest stage there recorded is 100·13 for the month of April, 1896. Upon only two other occasions did the stage reach 100. To rise the level above 100 regularly every year would be to inflict an injury upon the riparian proprietors.

The mean elevation of the lake for the entire period was 96·10. The lowest stage reached was 93·65. During seven years it did not fall below 95. To allow the lake to be drained below 95 every year would be to inflict injury upon the navigation interests.

The limits between which the lake should be regulated are, therefore, 100 as a maximum and 95 as a minimum, notwithstanding that the reserve of water will not in very dry years be sufficient to supply 9,000 cubic feet per second.

As Lake Champlain is wholly within the territory of the United States, and the proposed works are wholly within Canadian territory, the international questions raised are of some moment. It is, in our opinion, not desirable that either nation should obstruct the natural flow of streams crossing the international boundary to the injury of public or private rights in the other. It is manifest, therefore, that the applicants should furnish conclusive evidence that private rights in the States of New York and Vermont adjoining Lake Champlain will not be injuriously affected by the alteration of the lake level as proposed, and that as the Secretary of War of the United States has control of the interests of navigation on Lake Champlain, the said work should not be undertaken without his permission and should be operated under such regulations as he may direct with a view to the maintenance of the level of the said lake as the interests of navigation thereon may require. It would be possible to plan works adapted to the conditions, and in our opinion such works should be permitted, provided they do not interfere with private interests in the United States and meet with the approval of the Secretary of War as suggested. We respectfully submit that in any treaty to be had between the two nations in relation to the use of international waters, the principles above suggested should have consideration. We would further suggest that the applicants' Canadian Act of incorporation should be amended so as to provide that the maintenance of the works sought to be erected shall be conditional at all times upon compliance with all regulations im-

posed by the Secretary of War of the United States of America, from time to time for the preservation of the levels of Lake Champlain.

All of which is respectfully submitted.

GEO. C. GIBBONS,
Chairman, Canadian Section.

W. F. KING,
Commissioner.

LOUIS COSTE,
Commissioner.

Attest,

THOMAS COTE,
Secretary, Canadian Section.

O. H. ERNST,
Brig.-General, U.S.A., Retired.
Chairman, American Section.

GEORGE CLINTON,
Commissioner.

E. E. HASKELL,
Commissioner.

Attest,

W. EDWARD WILSON,
Secretary, American Section.

JOINT REPORT ON THE APPLICATION OF THE MINNESOTA CANAL AND POWER COMPANY, OF DULUTH, MINNESOTA, FOR PERMISSION TO DIVERT CERTAIN WATERS IN THE STATE OF MINNESOTA FROM THE BOUNDARY WATERS BETWEEN THE UNITED STATES AND CANADA, 1906.

BUFFALO, N.Y., November 15, 1906.

To the Honourable the Minister of Public Works of Canada, and to the Honourable the Secretary of War of the United States.

The International Waterways Commission would respectfully report that it has investigated as fully as existing data would permit the matters involved in the applications of the Minnesota Canal and Power Company, of Duluth, Minnesota, for the approval of its plans and structures to divert water from the Birch lake drainage basin in St. Louis and Lake counties, Minnesota, and for the use of certain public lands of the United States in said counties, and that it has heard the parties interested in said applications and those opposed. The physical data, outside of those furnished by the applicant, are few and not sufficient to show all the conditions existing. The applicant, however, has furnished maps and data which are not seriously contested by those opposing the applications, and they are considered sufficient to warrant the conclusions at which the commission has arrived, as set forth in this report.

The application of the Secretary of War of the United States is for the approval of certain plans for structures which will impound the waters of the Birch lake drainage basin, and divert them from that basin to Lake Superior, and for authorization to erect such structures and divert the waters.

The application to the Department of the Interior is for permission to use certain public lands, by flowage and otherwise, for the purpose of creating electrical power at Duluth, on Lake Superior. The Minnesota Canal and Power Company propose to divert water from the Birch lake drainage basin, which is naturally tributary to the Rainy river, Lake of the Woods, Winnipeg river and lake, and finally to Hudson bay. The quantity of water to be so diverted is mentioned in some of the documents before the commission as 600 cubic feet per second, but the company does not propose to limit itself to that amount if it be found, after the completion of its works as now planned, that a greater quantity can be obtained without injury to navigation interests. With 600 cubic feet per second about 30,000 electrical horse-power can be generated for use in Duluth and the mining regions of Minnesota.

The subject matter under consideration was called to the attention of the Canadian section of this commission by the Honourable the Secretary of State for Canada, in a letter dated January 6, 1905, in which, among other things, in stating the subjects that might come before the commission for its consideration, he mentions 'the proposed diversion southward by the Minnesota Canal and Power Company, of Duluth, of certain waters in the state of Minnesota, that now flow north into the Rainy river and the Lake of the Woods.' The same matter was called to the attention of the American section by a letter from the Minnesota Canal and Power Company, dated March 10, 1905, addressed to the chairman, in which the company referred to the application of the Power Company pending in the Interior Department, stating that it was advised that one of the subjects which would come before the commission for consideration is the proposed diversion southward of certain waters in the state of Minne-

sota that now flow north into the Rainy river and the Lake of the Woods, and requesting that the matter be brought before the commission at the earliest practicable moment.

At a meeting of the commission, held June 15, 1905, this matter was laid over, for the reason that other and more pressing matters required the attention of the commission, and for the further reason that the jurisdiction of the commission over any waters except those in, or tributary to, the Great Lakes and the St. Lawrence river had been placed in doubt by the construction given by the government of the United States to the Act of Congress under which the commission was organized. The subject-matter having now been referred to the commission by the Honourable, the Secretary of War of the United States, and the Honourable, the Secretary of State for Canada, we regard our jurisdiction as fully established.

The Minnesota Canal and Power Company is a corporation organized under the laws of the state of Minnesota, with power to erect the works for the construction of which authorization is sought from the War Department of the United States, and with certain powers of eminent domain. It has heretofore brought proceedings in the District Courts of Minnesota for the purpose of putting into exercise the right of eminent domain and of condemning property and rights of persons who may be affected by the carrying out of its plans. The result of these proceedings has been an appeal to the Supreme Court of Minnesota, which has decided that the waters which would be affected by the carrying out of the Power Company's plans are public navigable waters, and that the statutes under which the company is organized do not, as an incident to the construction of a canal and the creating of a water-power, authorize a corporation to withdraw and divert waters from public navigable lakes and streams to such an extent as to interfere with present or future navigation, and by means of canals carry it over a divide and discharge it into a different drainage area, thus permanently withdrawing it from its natural course. This decision resulted in holding that the proceedings taken by the company to condemn property and rights of individuals must be dismissed.

The court says that 'In view of the presumption in favour of the rights of the individual, the state and federal prohibition against the obstruction of navigable waters, the rule that the rights of the state in such waters are sovereign and not proprietary, that they are held by the public as highways and cannot be alienable, the possible effect upon the rights of riparian proprietors in the province of Ontario, the fact that the doctrine of the appropriation of waters, adopted in some of the western states, does not prevail in Minnesota, and is not recognized by the conventional law of nations, the treaty relations between the United States and Great Britain with reference to the boundary waters between the United States and Canada, and that the taking of the waters would interfere with streams and lakes which are already devoted to public uses, which can only be done under express statutory authority,' it is constrained to hold that the appellant is not authorized to condemn the interests sought to be condemned. The applicant, assuming that the decision of the Supreme Court, adverse to it would be adhered to only upon the ground that its petition included private as well as public uses, has filed another petition making the purposes for which condemnation will be sought wholly public and has begun new condemnation proceedings.

Objections and protests have been filed with the commission on behalf of various interests opposed to the granting of the Canal and Power Company's application. These objections may be divided into two classes: first: objections made by parties claiming that they have interests and property rights in the state of Minnesota which will be affected by the carrying out of the Canal and Power Company's plans; and second: objections made by parties having interests in the boundary waters in the state of Minnesota and in Canada, which it is claimed will be affected by the proposed diversion of the waters of the Birch lake drainage area.

The first class of objectors includes Frederick B. Spelman, who claims to be the owner in fee of valuable water rights on Birch river; the Northeastern Minnesota Power Company, a corporation organized under the laws of the state of Minnesota for

the purpose of generating electricity by water power, and distributing and selling the same, which claims that it is the owner of certain real estate in Lake County, Minnesota, bordering on Kawishiwi falls; the St. Croix Lumber Company, and the Fall Lake Boom Company, corporations organized under the laws of the state of Minnesota, which, acting together, are engaged in the manufacture of lumber in the state of Minnesota, and using, for the purpose of bringing logs to the mills of the lumber company, waters which would be affected by the diversion contemplated by the Canal and Power Company, and which companies also have certain property interests in Minnesota; and Lazarus Silverman, representing the Enterprise Iron and Land Company, which has valuable land and water interests in Minnesota. It is understood that the interests of the last named company are owned or controlled by the Northeastern Minnesota Power Company. Others having interests in the United States are the Hope Land Company, the Higgins Land Company and the Higgins Wild Cat Company, who object on the ground that the reservoir proposed will flood their lands, and the Duluth and Iron Range Railroad Company, which protests against the projected work as being 'an improper and unwarranted use of the international waters.'

The property, rights and interests of all these parties will be injuriously affected, to a greater or less extent, in case the Minnesota Canal and Power Company is permitted to impound the waters of the Birch lake drainage basin and divert them to Lake Superior from the streams flowing into the boundary waters. The commission, however, is of the opinion that the rights and interests of these parties can be properly protected under the laws of the state of Minnesota. We, therefore, conclude that their objections do not present any international questions, and such questions alone the commission considers as having been referred to it.

The second class of objectors include the corporation of the town of Fort Frances, in the province of Ontario, which claims to have valuable navigation advantages upon Rainy river, long recognized as an international waterway; the Koochiching Company, a corporation organized under the laws of the state of Iowa, the owner in fee simple of a section of land bordering on Rainy river at Koochiching falls, opposite Fort Frances; the Rainy River Improvement Company, a corporation organized under the laws of the state of Minnesota, for the purpose of improving the navigation of the boundary waters by means of dams and canals to be constructed at Koochiching falls and elsewhere, for the development of water power at the Koochiching dam, and for the transportation of logs; and Edward W. Backus, of Minneapolis, who has entered into a contract with the government of Ontario, by which he has agreed to construct a dam across the Rainy river and develop power at the Koochiching falls, which agreement is now understood to be assigned to the Ontario and Minnesota Power Company, a corporation organized under the laws of Canada. It is understood that the Koochiching Company, the Rainy River Improvement Company, Edward W. Backus and the Ontario and Minnesota Power Company are associated and are acting in concert. The Rainy River Navigation Company and the city of Winnipeg also object to the proposed diversion.

These interests strenuously object to the carrying out of the plans of the Minnesota Canal and Power Company, claiming that diminution of water by reason of the proposed diversion in the streams which they propose to utilize will greatly injure their navigation interests and their ability to produce electric power.

In addition to these objections of individuals, the Canadian government, acting upon a memorial of the municipal corporation of Fort Frances, addressed to the Canadian Minister of Marine and Fisheries, brought the proposed diversion to the attention of the British Ambassador at Washington for his information and such action as might be possible in the premises. A copy of this memorial is hereto attached, marked 'A.' Upon receipt of the communication from the Canadian government, the British Ambassador presented the matter to the Secretary of State of the United States, on January 3, 1905, requesting that the proposed diversion be not carried out pending the meeting of this commission.

At a hearing before the commission, held at Buffalo on June 26, 1906, Col. Anderson, chief engineer of the Department of Marine and Fisheries of Canada, and Mr.

J. G. Sing, engineer in charge of the Rainy River district of the Department of Public Works of Canada, appeared and opposed the proposed diversion on the ground that it would be detrimental to Canadian interests and especially to navigation upon the boundary waters. At a meeting of the commission, held in Toronto on July 24, 1906, written objections were presented as follows, viz.: A resolution of the municipal council of the town of Kenora, Canada, a copy of which is hereto annexed, marked 'B,' a letter from Mr. George A. Graham, manager of the Rainy River Navigation Company, a copy of which is hereto annexed, marked 'C,' a resolution of the Kenora Board of Trade, a copy of which is hereto annexed, marked 'D,' and a written statement by Mr. Sing, hereto annexed, marked 'E.'

At a meeting of the commission, held at the city of Chicago, Illinois, on the 17th day of October, 1906, H. N. Ruttan, city engineer of the city of Winnipeg, Canada, appeared before the commission in opposition to the application of the Minnesota Canal and Power Company. After stating that the probable head available for power purposes between Rainy lake and Lake Winnipeg, on the Winnipeg river, approximates three hundred feet, that the discharge of Winnipeg river at Point du Bois falls, in the province of Manitoba, was nineteen thousand cubic feet per second in March, 1906, and that the discharge at extreme low water might reach a manimum of seventeen thousand cubic feet per second, that works had been completed and were in course of construction between Rainy lake and Lake Winnipeg, aggregating approximately one hundred and fifty thousand horse-power, involving an expenditure of between fifteen and twenty millions of dollars, and that many additional powers are projected, some of which will no doubt be constructed, that the city of Winnipeg has a population of one hundred thousand, which is rapidly increasing, and has voted to construct a water power at Point du Bois, at a cost estimated at three and one-quarter millions of dollars for preliminary development, Mr. Ruttan, on behalf of the city of Winnipeg, objected to the diversion of water which naturally belongs to the Winnipeg watershed.

The action of the British Ambassador, at the request of the Canadian government, together with the fact that the rights and interests of Canadian citizens will be affected by the carrying out of the plans of the Minnesota Canal and Power Company, and the fact that navigation of boundary waters will be to some extent injured if such plans are put in operation, presents international questions, which, in the opinion of this commission, will be involved in many other instances of boundary streams between the two countries and require the most careful consideration. In order that there may be no question as to the exact intent of the commission in giving its conclusions, it is deemed best to state with as much exactitude as possible the existing conditions which give rise to the questions to be disposed of.

The commission finds the physical conditions of the locality to be as follows: The Birch Lake Drainage Basin is situated in the counties of St. Louis and Lake, in the State of Minnesota, the border of the basin being only about fourteen miles from Lake Superior. This drainage basin contains a chain of small lakes, the largest of these known as Birch lake, liyng near the western border of the basin. A portion of the drainage of this basin flows westerly through the North Kawishiwi river and Farm lake to Garden lake, with a fall of about fifty-six feet in the distance of nine miles; another portion flows southwesterly through the south Kawishiwi into Birch lake, and thence northerly through Birch river and White Iron lake to Garden lake, the distance traversed by the waters along this route being about twenty-four miles. Passing Kawishiwi falls, the waters, continually increasing in volume, flow through Fall lake over the Pipestone falls to Basswood lake, lying on the international boundary between the United States and Canada; the waters thence flow in a general northwesterly direction through Crooked and Iron lakes, Lac la Croix, Namakan river and lake, to the Rainy lake, and thence through Rainy river to the Lake of the Woods. From Basswood lake to the Lake of the Woods the waters flow along the international boundary line with the exception of about twenty miles, where they traverse the Namakan river, entirely in Canadian territory.

Within two miles of the western end of Birch lake, and separated from it by a low divide, rises the Embarrass river, its waters flowing southwesterly through Sabin,

Embarrass and Esquagamau lakes into the St. Louis river, and thence into St. Louis bay and Lake Superior. The St. Louis bay and river form a portion of a boundary between Minnesota and Wisconsin and are navigable from Lake Superior to Fond du Lac, Minnesota. From Fond du Lac to Cloquet the St. Louis river is unnavigable, there being a fall of approximately six hundred feet in a distance of fourteen miles ; above the latter point it is used to float logs, about twenty-five million feet, it is said, being transported annually.

The natural waterway from Birch lake to Rainy lake may be described as a series of pools of greater or less extent connected by short and shallow channels containing rapids or falls. The pools or lakes are capable of floating logs and are in general navigable by small steamboats; but the connecting channels are, in their natural condition, not navigable save by canoes or small boats and in places are wholly unnavigable, some of them being even incapable of floating logs, except at times of high water. The channels connecting Birch lake with the lakes directly north are of this character and a dam has been erected at the outlet of Birch lake for the purpose of raising the water and floating logs over the rapids by means of the greater flow made available by opening gates; and at the outlet of Garden lake a roll dam has been built to serve a similar purpose.

Navigation upon Birch lake is confined to canoes and rafts of logs which are towed by a small tug called a log puller. This tug was built upon the lake and under present natural conditions is confined to its waters. Similar conditions prevail on White Iron and Garden lakes, the pools next below or north of Birch lake, a steam log puller being operated on each. About twenty million feet of logs are said to be transported annually from Birch lake and vicinity to a saw-mill on Fall lake.

Between Birch Lake and Rainy lake the only through navigation is by canoes and it is said that there are no less than eighteen places at which portages are required by reason of the waterfalls and rapids.

Basswood and Crooked lakes, Lac la Croix and Namakan lake are all navigable and it is understood that they are not only used for the floating of logs but that one or more small tugs or log pullers are in use upon each of them, although through navigation by boats is not possible. There have been at least two small steamboats operating on Basswood lake having a gross tonnage of three and ten tons respectively.

Rainy lake is a navigable waterway and several steamboats of small tonnage are operating upon it. There are two points in this lake restricting the navigable depth. One of these is known as the 'Brulé Narrows,' about midway of its length, and the other is at Pither's Point, at the outlet of the lake and just above Koochiching falls. The depth at these points in ordinary low water is about seven feet and it is understood there have been years when the larger boats were laid up on account of low water. The allied interests represented by the Rainy River Improvement Company on the American side and the Ontario and Minnesota Power Company on the Canadian side are engaged in building dams at Fort Frances above Koochiching falls for the purpose of improving the water power, and thereby incidentally improving the navigability of Rainy lake by raising the elevation of its water surface.

There are two, and possibly more, steamboats operating on Rainy river, and making regular trips between Fort Frances at the Koochiching falls and Rat Portage on the Lake of the Woods, and touching at way ports.

The only improvement made by the United States government on any of these waterways is at the harbour of Warroad, Minnesota, which has been improved to a depth of seven feet below the stage of water at the time of making the survey. The elevation of the Lake of the Woods, and consequently the depth of water in the harbour, is controlled by the operation of the Keewatin dam at Rat Portage, which is operated under the direction of the Canadian Government. The Annual Report of the Chief of Engineers, U.S.A., 1904, gives the following statistics regarding the commerce of the town of Warroad :

'The town of Warroad, now four years old, has a population of 700, and the adjacent country is rapidly filling up with settlers. The imports of Warroad increased

from 254 tons in 1900 to 2,754 tons in 1904. During the same period the exports increased from 1,215 tons to 9,929 tons.

In the report of 1905, the following statement is made:

'The town of Warroad, now five years old, has a population of about 1,000, and the adjacent country is rapidly filling up with settlers.

'Up to this time Warroad Harbour has had no regular lake traffic, the condition of the entrance to the harbour not having been such as to permit it.

'On the Lake of the Woods there are at present 25 or more registered Canadian boats, ranging from 30 to 486 tons burden, some of which occasionally visit Warroad Harbour when conditions are favourable.

'The United States boats connected with Warroad Harbour are the propellers Na-ma-puk and Knute Nelson, the former about 36 feet long and the latter about 80 feet.'

The Canadian government has made slight improvements above the Lake of the Woods and an agreement has been made between the Commissioner of Crown Lands for the Province of Ontario and E. W. Backus, who subsequently transferred his rights to the Ontario and Minnesota Power Company, whereby in return for certain water power privileges the latter is required to construct a dam at Koochiching Falls to be subject to the control of the government, making it possible to maintain the water level in Rainy Lake at or above the present extreme high water stage.

The country traversed by the waterway leading from Birch lake to Rainy lake is in general rough and unimproved. The timber consists of white and Norway pine, spruce and less valuable woods, typical of Lake Superior forests. The pine is being rapidly cleared from some of the larger tracts. The Vermillion and Mesabi iron districts cross the territory between Birch lake and the boundary line, and the soil is shallow and not well suited to agriculture.

The population, in 1900, of the townships bordering the waterway from Birch lake to and including Basswood lake, did not exceed 4,000, the town of Ely having a population of 3,717. This sparse population depends largely upon the mining and timber industries of the locality. The population of the townships on the American side bordering the waterway from Basswood lake to and including the Lake of the Woods, and covering about 200 miles of shore line, was only about 600 according to the census of 1900. The country bordering the Lake of the Woods on the Canadian side is fairly well settled. On the American side it is wilderness composed largely of Indian reservations, portions of which have been thrown open to settlement. The vicinity of Warroad has been recently so opened.

At several places along the waterway from Birch lake to Rainy lake, development of water power is possible, but at most of them it is not commercially feasible at present, for the following reasons: A considerable fall is not usually concentrated at one point, but is distributed over rapids; the flow is not uniform, but is very small during the dry season, and, unless the waters of the flood season are impounded, the extent of the possible continuous development is restricted by the low water flow; the construction of reservoirs would entail a heavy expenditure in proportion to the possible development; the demand for power in the vicinity is extremely limited.

The Kawishiwi falls may be an exception to this general rule and the development of this power may be commercially practicable in the near future, if not at present. In this case there is a fall of about 65 feet in three-quarters of a mile between Garden Lake and Fall lake, and by the construction of a reservoir system similar to that proposed by the applicant, there would be available about 6,000 theoretical horse-power. A market for this power could probably be found at Ely and in the mines in the locality.

Between Birch lake and White Iron lake there is a natural fall of about 28 feet. If the North Kawishiwi outlet of Birch lake were closed by a dam, and an extensive reservoir system constructed similar to that proposed by the applicant, there would be available at this point about 2,500 theoretical horse-power.

Below Kawishiwi falls and between the outlet of Fall lake and Basswood lake there is a fall of about 15 feet in less than three miles. By using 820 cubic feet per second, which is the minimum flow, plus the amount of water to be diverted, there would be available about 1,500 theoretical horse-power.

The value of the three water-powers last mentioned, whether present or prospective, would be practically extinguished by the applicant's proposed works, but, as before stated, the rights of their owners can be properly protected under the laws of Minnesota.

At Koochiching falls in the Rainy river, just below the outlet of Rainy lake, there is a natural fall of about 23 feet in a short distance. The minimum discharge of the river has been estimated at 3,500 cubic feet per second. This volume would give about 7,800 theoretical horse-power without storage, and by raising the water level of Rainy lake five to seven feet by means of dams above Koochiching falls it would be possible to double this development. Even this would permit the utilization of less than half of the average outflow. Unless an extensive reservoir system is constructed, therefore, including the lakes nearer the head waters, at least one-half of the waters of the basin tributary to Rainy lake, or more than ten times the quantity of water proposed to be used by the applicant, will serve no useful purpose for power development at this point.

The improvements for which the applicant now asks approval are as follows: To erect a dam at the mouth of Gabbro lake to impound water in the lakes tributary thereto and form what is called the Isabelle Reservoir; to erect a dam in the North Kawishiwi river to impound the waters in the lakes and streams tributary to Birch lake naturally flowing westerly into White Iron and Garden lakes; to erect a dam in the South Kawishiwi river, which, in connection with the dam last mentioned, will form the Kawishiwi reservoir; and to erect a dam in Birch river at the outlet of Birch lake to impound its waters and form the Birch Lake reservoir. The company proposes to cut a canal from the west end of Birch lake a distance of about six miles across the divide to the head waters of the Embarrass river and to erect controlling works at the entrance to this canal to regulate the flow of water from Birch lake into the Embarrass river canal. From a point in the St. Louis river above Cloquet it proposes to dig another canal about twenty-four and one-half miles long to a point in the city of Duluth, where the bluff is about 600 feet above the water level of Lake Superior, and to lay pipes from the easterly end of this, the St. Louis river canal, to the power-house of the company to be erected on the shores of St. Louis bay. It is proposed to divert at least 600 cubic feet of water per second from the Birch Lake reservoir into the Embarrass canal and river, and thence into the St. Louis river, and to take the same amount from the latter into the St. Louis river canal and convey it by canal and pipes to the turbines located in the company's power-house, thereby developing about 30,000 electrical horse-power; the amount of water diverted and of power created to be increased hereafter if circumstances permit.

The amount of water the company proposes to divert from the natural channels leading to Basswood lake, and thence along the international boundary, is estimated to be about 37 per cent of the water tributary to Basswood lake, four per cent of that tributary to Rainy lake, and two and four-tenths per cent of that tributary to the Lake of the Woods.

The data available covering the hydraulic conditions are inadequate for an accurate analysis of the effect of the work proposed by the company, since the distribution of the supply and the discharge of the outlets of the several lakes throughout the year have not been determined. The effect on the navigable depth of Rainy lake and the waterway below that point would be very slight under natural conditions and become still less important by reason of the fact that the elevation of Rainy lake will be controlled by the Koochiching dam, when completed, as the elevation of the Lake of the Woods is now controlled by the Keewatin dam. The company offers no objection to the suggestion to conserve navigation interests by the construction of such remedial works as may be necessary. While the data are insufficient to determine the extent of the remedial works required, they are sufficient to warrant the belief that full compensation is possible.

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The minimum discharge from Birch Lake drainage basin is estimated by the engineers of the company to be about 220 cubic feet per second and the average discharge about 975 cubic feet per second. The reservoir system created by the dams proposed by the company will permit of storing a portion of the waters during months of excessive supply for use during the remainder of the year when the natural supply is deficient.

From April to June inclusive the supply to the lakes is greatly in excess of the natural discharge, and in July, August and September the supply in a year of ordinary precipitation is probably in excess of the amount to be withdrawn by the applicant. It would appear, therefore, that the reservoirs might in general be kept full until October first. The reservoirs proposed by the applicant are sufficient to store eight billion, nineteen million cubic feet of water, and it is claimed that this capacity might be doubled by an extension of its works, without intereference with other watersheds draining north. If the proposed smaller capacity reservoirs were full on October first, the applicant could withdraw its own supply entirely from the reservoirs for five months and still permit the natural supply of the lakes during this low water period to flow in the present channel. Under such conditions the usual low water discharge of Birch and North Kawishiwi rivers would be depleted by the amount of water now supplied by the lakes tributary to them; namely, by the natural decrease in stage of those lakes during low water. It would be possible to require the company to maintain at all times a flow in the natural channel equal to the present estimated minimum discharge, without disastrously affecting the applicant's plans.

The lakes could be held at or above the present elevation by a dam properly constructed at the outlet of each, and the future improvement of the stream, in general, by locks and dams, would not be impaired when prospective commerce demands such a step. In order, however, to accommodate the commerce now existing or in prospect between adjoining lakes above Rainy lake, namely, the transportation of logs over rapids and falls, the gates in these dams would have to be operated with regard to the necessities of commerce rather than to serve the interests of the applicant and should be so operated.

In a report upon this subject addressed to the Chief of Engineers, U. S. Army, by Major Geo. McC. Derby, May 24, 1905, Major Derby enumerated the conditions under which he considered the application should be granted, and the applicant appears to be willing to accept these conditions, which include the following:

'The Minnesota Canal and Power Company should construct and maintain a dam or dams in Lake Namakan, or at some other point or points above Rainy lake, so as to impound and store during periods of high water, when it would otherwise go to waste, an amount of water equal to the entire amount diverted from the watershed of Rainy lake, releasing this water into Rainy lake from time to time as the interests of navigation in Rainy river and above may require, in accordance with regulations to be made by the Secretary of War.'

'The Minnesota Canal and Power Company should construct and maintain such additional dams as may be necessary to maintain Basswood lake and the other lakes between Birch lake and Rainy lake at or above their mean level; and should release from all such dams from time to time such amount of water as may be necessary to sluice logs from one lake to the next, and for other interests of navigation, in accordance with regulations to be made by the Secretary of War.'

It is quite apparent that the interests to be promoted at the city of Duluth, and at the Minnesota mines, by the generation and transmission of electricity, if the diversion be permitted, will be very great, the amount of horse-power which will be available being about 30,000.

The canal which the applicant proposes to construct, and the improvement of the lakes and streams south of the Birch lake drainage area, will furnish additional aids to navigation, particularly for the transportation of logs cut in the forests within that area.

INTERNATIONAL ASPECT OF QUESTIONS INVOLVED.

The proposed diversion, so far as it would affect navigation upon boundary waters, presents a serious objection to the granting of the permit asked.

By the terms of article II. of the treaty of 1842, between the United States and Great Britain, the boundary line from a point in the Neebish channel, where the commissioners appointed under the sixth article of the treaty of Ghent ended their labours, was defined westward to the Rocky mountains. In that article there is added to the description this sentence:

'It being understood that all the water communications and all the usual portages along the line from Lake Superior to the Lake of the Woods, and also Grand Portage, from the shore of Lake Superior to the Pigeon river, as now actually used, shall be free and open to the use of the citizens and subjects of both countries.'

This clause secures to Canada free and unobstructed navigation of the boundary waters from which the proposed diversion is to be made. In the opinion of the commission it secures to Canada, by necessary construction, the right to navigate those waters in any manner which the natural flow will permit. Any interference with the natural flow which decreases the navigable capacity of Basswood lake, Rainy river, Rainy lake or the Lake of the Woods is a violation of the letter and spirit of the treaty, and the extent of the interference is not important; if the navigable capacity is injuriously affected, Canada has the right to object. Nor does the possibility of restoring and regulating the flow in the boundary waters mentioned, by remedial works, confer any right to lessen the navigable capacity, for such works will have to be constructed in part in the Dominion of Canada and this cannot be done without Canada's consent, nor can the burden of constructing such works be imposed upon her.

The commission is aware that the clause of the treaty of 1842, quoted, has received a different construction from that which we place upon it. It has been said that the phrase 'as now actually used' applied to the use of the waters, and that, as at the time the treaty was entered into those waters were used for canoe navigation only, the treaty secures the right of canoe navigation and nothing more. This construction seems to us erroneous. The language of the clause secures the free and open use of the waters specified and the use of Grand Portage, as it was then 'actually used.' We deem it quite clear upon the face of the treaty that this was the intention of the treaty powers. The clause we are considering is divided into two subjects: one is the free and open use of the water communications and usual portages, and the other is the use of Grand Portage, and the subject matters are separated by the expression 'and also,' which would seem clearly to make the expression 'as now actually used' relate to the Grand Portage, inasmuch as that is introduced by the expression 'and also.' This construction would seem to be supported by the conditions existing at the time the treaty was negotiated and also by the obvious purpose of the treaty. When the treaty was entered into, the navigable waters on the boundary line west of Lake Superior were connected by portages, which were reasonably well defined and which naturally would be followed, but the Grand Portage, extending from Lake Superior overland to the Pigeon River, was of great length and subject to considerable change in accordance with the views of those who might use it from time to time. It was clearly necessary to define the Grand Portage by some description in the treaty, and this was done by inserting the phrase 'as now actually used.' It was evidently the intention of the treaty-making powers, in defining the boundaries, to secure to both countries the free and open use of the boundary waters for interior communication and transportation, and it would seem to be a narrow construction of the clause in question which would assign to those powers the intent to limit the right of communication and transportation to canoes, for this would place them in the position of utterly ignoring future conditions and practically destroying the value of the waterways as means of communication. The broader and proper construction, in the opinion of the commission, is that the intent was to preserve to both countries the 'free and open use' of the

boundary waters, in any matter that they could be made use of for the purposes mentioned.

In the opinion of the commission, therefore, the permit to permanently divert waters which would supply the boundary lakes and streams, ought not to be granted without the concurrence of the Dominion of Canada.

Aside from the effect of the treaty of 1842, there are other considerations which lead the commission to the conclusion that the permit applied for should not be granted without the concurrence of Canada.

The proposed diversion will, to some extent, injuriously affect riparian rights upon the Canadian side of the boundary waters and will also affect the water supply of the Namakan river and other waters, wholly in Canada. The principles involved in arriving at this conclusion do not impugn the right of the United States to grant the permit, but they are of such great importance and of such widespread application that the commission believes they should be settled and applied by both countries.

As the necessity for an enormous increase in the appropriation of water wholly within one country has given rise in later years to conditions which never existed before, recourse to authorities upon international law for direct precedents is useless, but there are certain principles of international law which have a direct bearing upon the question under consideration and which should, in the opinion of the commission, be sufficient for their solution.

It can hardly be disputed that, in the absence of treaty stipulation, a country through which streams have their course or in which lakes exist, can in the exercise of its sovereign powers, rightfully divert or otherwise appropriate the waters within its territory for purposes of irrigation, the improvement of navigation, or for any other purpose which the government may deem proper. This principle was lucidly stated by Mr. Harmon, Attorney General of the United States, on December 12, 1895, in a communication to the Secretary of State (opinions of Attorneys General, Vol. 21, p. 274). The question submitted to the Attorney General by the Secretary of State involved the right to appropriate the waters of the upper Rio Grande for irrigation purposes to the injury of residents of Mexico, and in giving his opinion the Attorney General laid down the law as follows: 'The fundamental principle of international law is the absolute sovereignty of every nation, as against all others, within its own territory.' He then quoted from Chief Justice Marshall's opinion in Schooner Exchange vs. McFadden, 7 Cranch, p. 136, the following excerpt:

'The jurisdiction of the nation within its own territory is necessarily exclusive and absolute. It is susceptible of no limitation not imposed by itself. Any restriction upon it, deriving validity from an external source would imply a diminution of its sovereignty to extent of the restriction, and an investment of that sovereignty to the same extent in that power which could impose such restriction.

All exceptions, therefore, to the full and complete power of a nation within its own territories must be traced up to the consent of the nation itself. They can flow from no other legitimate source.'

Great Britain also has insisted upon the same principle in the matter of the navigation of the lower St. Lawrence. The history of the positions taken by the United States and Great Britain need not be recited, but it will be noted that Great Britain did not recede from her position and simply conceded by treaty the right of navigation upon certain concessions being made by the United States. It would seem, therefore, to be settled international law, recognized by both countries, that the exercise of sovereign power over waters within the jurisdiction of a country, cannot be questioned, and that, notwithstanding such exercise may take a form that will be injurious to another country through which the waters of the same streams or lakes pass, it cannot be rightfully regarded as furnishing a cause of war. But where the citizens of a country are injured by such exercise of sovereignty, international law recognizes (unless there is urgent necessity for its exercise), that there is a breach of comity which entitles the country whose citizens or subjects are injured, to retaliate. Sir Robert Phillimore, in his commentaries upon international law (edition of 1879, pp 12 and 13), clearly draws the

distinction between the international duties of governments as they affect public interests and as they affect private interests. He states the international law as follows:—

'The *obligationes juris privati inter gentes* are not—as the *obligationes juris publici inter gentes* are—the result of legal necessity, but of social convenience and they are called by the name of comity—*comitas gentium*.

'It is within the absolute competence of a state to refuse permission to foreigners to enter into transaction with its subjects, or to allow them to do so, being forewarned that the municipal law of the land will be applied to them; therefore, a breach of comity cannot, strictly speaking, furnish a *casus belli*, or justify a recourse to war, any more than a discourtesy or breach of a natural duty, simply as such, can furnish ground for the private action of one individual against another.

'For want of comity towards the individual subjects of a foreign state, reciprocity of treatment by the state whose subjects has been injured, is, after remonstrance has been exhausted, the only legitimate remedy; whereas the breach of a rule of public international law constitutes a *casus belli*, and justifies in the last resort a recourse to war.'

It would seem that comity would require that, in the absence of necessity, the sovereign power should not be exercised to the injury of a friendly nation or of its citizens or subjects, without the consent of that nation.

The common law protects riparian owners against permanent diversions of water which injuriously affect their rights, and this law is founded upon principles, not merely of social necessity, but of justice and right. While the common law is not a part of the law of nations, its principles so far as they are founded in justice and equity, ought, where practicable, to be applied by nations acting in their sovereign capacity. The Department of State of the United States has adopted this principle in the past, and although the application was made in the case of conflicting riparian rights on a boundary stream, yet the commission can see no sound distinction between the position taken by the government of the United States in the case referred to, and cases of diversion of water wholly within one country where the diversion injuriously affects riparian owners in another country. This application of the common law was made by Mr. Evarts, Secretary of State. It was complained that Mexicans upon the Rio Grande in the neighbourhood of El Paso, were diverting so much of the waters of the river for irrigation purposes as to seriously affect the amount which could be obtained by citizens of the United States for a like purpose. Mr. Evarts in a communication to Mr. Navarro, the Mexican Minister (June 15, 1880), directs his attention to the complaints, and after referring to the abstraction of water by the Mexican population for irrigation purposes, says:

'As this is not only in direct opposition to the recognized rights of riparian proprietors, but is also contrary to that good feeling and harmony which ought to exist between co-labourers in peaceful pursuits, and might, moreover, if permitted to continue, result in bitter feeling and possible breaches of the peace, I most earnestly request, in these high interests, that you will have the goodness to bring the matter to the attention of your government with a view to procuring a cessation of the annoyance complained of.' (Vol. 1, p. 63, Wharton's International Law Digest.)

Mr. Farnham, while somewhat over-stating the law, in his work on 'Waters and Water Rights' (edition of 1904, vol. 1, p. 29), forcibly enunciates the principles which should obtain, citing authorities.

'A river which flows through the territory of several states or nations is their common property. Each is entitled to its navigation throughout its whole extent, so far as it can be exercised without injury to the rights of others. It is a great natural highway conferring, besides the facilities of navigation, certain incidental advantages such as fishery and the right to use the water for power and irrigation. Neither nation can do any act which will deprive the other of the benefits of these rights and advantages. The inherent right of a nation to protect itself and its territory would justify the one lower down the stream in preventing by force the one further up from turning the river out of its course, or in consuming so much of the water for purposes of its own as to deprive

the former of its benefit. Conversely, the upper owner would have a right to prevent an obstruction of the stream which would prevent fish from ascending to its shores, or interfere with its rights of navigation. To prevent resort to force, courts of arbitration would protect these rights, and the courts of the respective nations will prevent acts on the part of their own subjects which interfere with the rights of subjects of other states. And courts having a supervisory jurisdiction over the acts of the political department of government will prevent acts by that department which will injure the rights of neighbouring states. The gifts of nature are for the benefit of mankind, and no aggregation of men can assert and exercise such rights and ownership of them as will deprive others having equal rights, and means of enjoying them, of such enjoyment. The acts of nations must be governed by principles of right and justice. The days of force and self-aggrandizement at the expense of neighbouring nations are past, and the common right to enjoy the bountiful provisions of Providence must be preserved.'

Messrs. Jeremiah Smith and George B. French very fully and ably discuss in the *Harvard Review*, November, 1894, volume 8, number 3, the power of a state to divert an inter-state river. They said: 'Because Massachusetts can compel a sale of property in Massachusetts, it does not follow that it also can compel a sale of property in New Hampshire. Massachusetts has not the power to compel a New Hampshire riparian proprietor to sell his right (annexed to and arising out of his New Hampshire land), that the water of the river should continue to flow to his land. A state cannot exercise the power of eminent domain extra-territorially. Massachusetts cannot condemn land in New Hampshire. Massachusetts cannot, as against a citizen of New Hampshire, authorize the doing of an act in Massachusetts which will result in the taking of property rights in New Hampshire. Massachusetts could not authorize the building of a dam in Massachusetts which would flood land in New Hampshire.'

'By parity of reasoning, Massachusetts could not authorize the construction of an aqueduct or canal in Massachusetts which would divert water from a stream naturally flowing to New Hampshire. The right infringed by flooding New Hampshire land may be called absolute ownership. The right infringed by diverting water from the New Hampshire land may be called an easement. The consequence in the one case may be positive, and in the other case negative. But in each case it is a property right that is infringed; and the consequence is as direct in the latter case as in the former. * * * Massachusetts, even if an entirely distinct and independent sovereignty—even if standing to New Hampshire in the relation of France to Spain—would not have a right, under the rules of international law, to do this act. The law of nations recognizes no such right, even between states wholly foreign to each other. * * * * * * Massachusetts instead of merely denying New Hampshire's right to use, in Massachusetts, that part of the river which naturally flows through Massachusetts, is, in effect, denying New Hampshire's right to use, in New Hampshire, that part of the river which naturally flows through New Hampshire. Massachusetts, instead of saying to New Hampshire, "You shall not hereafter use, in Massachusetts, that part of the common river which flows through Massachusetts," makes a far more startling declaration. Massachusetts says to New Hampshire, "You shall not hereafter have the use of the river even within your own borders, for Massachusetts denies your right to have any part of the river flow through New Hampshire." '

These principles were applied in the Holyoke Water Power Company vs. Connecticut River Company (22 Blatch 131, 20 Feb., '71).

In this case the plaintiff claims that its property located in Massachusetts would be injured by the defendants raising of a dam in the State of Connecticut. The defendant justified under powers given it by the State of Connecticut claiming that its proposed structure was in aid of navigation. A permanent injunction was granted enjoining the defendant.

The court, after holding that the State of Connecticut had jurisdiction over lands within its boundaries says, 'As Connecticut has no direct jurisdiction or contral over

real estate situate in another state, it cannot indirectly, by virtue of its attempted improvement of its own navigable waters, control or subject to injury foreign real estate.

'If this resolution is a bar to an action for any consequent injury to land or to rights connected with land in Massachusetts, Connecticut is acting extra-territorially.'

CONCLUSIONS.

The commission has arrived at the following conclusions:

1. While the work proposed by the applicant will be of great advantage to the interests served, it will interfere with public and private interests in Canada, and the commission see no public necessity for it.

2. The proposed diversion will injure the interests of various classes of persons, namely, residents of the United States having property rights in the State of Minnesota, residents of the United States having property rights and interests in Canada and in the boundary waters, residents of Canada having property rights and interests in Canada, and municipalities in the Dominion of Canada. The rights and interests which will be affected are divisible into two classes, namely, those which depend upon navigation directly or indirectly, and those which depend upon the use of waters of the various streams and lakes for power purposes.

3. The proposed diversion will affect injuriously navigation upon the boundary waters between the United States and Canada, above mentioned, and upon navigable waters in Canada connecting said boundary waters; but,

4. So far as water power interests on the international boundary or in Canada are concerned, which depend upon the supply from the Birch lake drainage area, although remedial works at locations above Rainy lake may be constructed, the total amount of water which can be stored and used for power purposes upon the boundary and connecting waters located wholly in Canada, will be diminished.

5. The applicant, the Minnesota Canal and Power Company of Duluth, Minnesota, under the decision of the Supreme Court of Minnesota, above cited, apparently has not the power to utilize the permit it seeks to obtain, but possibly may acquire that power. It would seem, therefore, that the permit which the applicant seeks, ought not in any case to be granted before it secures authority under the laws of Minnesota to utilize it.

6. That the rights and interests of the residents of Minnesota which may be affected by the proposed diversion, are of so much less importance than the interests which will be promoted by the proposed works of the applicant, that they do not furnish a sufficient reason for refusing the permit sought, inasmuch as full compensation must be made to such persons under the laws of Minnesota.

7. Neither the State of Minnesota nor the United States can provide the adequate means by which money compensation can be ascertained and made to the owners of the interests in Canada which may be injured, and it follows that individuals sustaining injury would be relegated to litigation. This is a violation of the principle of law that private property shall not be taken for public use, unless provision for compensation can be made without litigation and its attendant delays and expense.

8. So far as remedial works are concerned, it is sufficient to say that there is no jurisdiction in the United States or in the State of Minnesota to provide for or permit the erection of the necessary remedial works in Canada.

9. That although it might be advisable to grant the permit applied for, in case the applicant should acquire the powers necessary to utilize it, if objections arising from international relations did not exist, treaty provisions, international comity and the impossibility of providing just means of assuring adequate compensation for injury to interests in Canada, or of preserving navigation unimpaired on the boundary streams, without concurrent action of both governments concerned, lead us to the

conclusion that the permit should not be granted unless the full protection of all interests not cared for by the laws of Minnesota be secured by concurrent action of the United States and Canada.

RECOMMENDATIONS.

1. The commission would, therefore, recommend that the permit applied for be not granted without the concurrence of the Canadian government.

2. As questions involving the same principles and difficulties, liable to create friction, hostile feelings and reprisals, are liable to arise between the two countries, affecting waters on or crossing the boundary line, the commission would recommend that a treaty be entered into which shall settle the rules and principles upon which all such questions may be peacefully and satisfactorily determined as they arise.

3. The commission would recommend that any treaty which may be entered into should define the uses to which international waters may be put by either country without the necessity of adjustment in each instance, and would respectfully suggest that such uses should be declared to be:

(a) Use for necessary domestic and sanitary purposes.
(b) Service of locks used for navigation purposes.
(c) The right to navigate.

4. The commission would also respectfully suggest that the treaty should prohibit the permanent diversion of navigable streams which cross the international boundary or which form a part thereof, except upon adjustment of the rights of all parties concerned by a permanent commission, and with its consent.

All of which is respectfully submitted,

GEO. C. GIBBONS,
Chairman, Canadian Section.

W. F. KING,
Commissioner.

LOUIS COSTE,
Commissioner.

Attest,
THOMAS COTE,
Secretary, Canadian Section.

O. H. ERNST,
Brig.-Genl. U.S. Army, Retired,
Chairman, American Section.

GEORGE CLINTON,
Commissioner.

E. E. HASKELL,
Commissioner.

Attest,
W. EDWARD WILSON,
Secretary, American Section.

APPENDIX 'A.'

To the Honourable
The Minister of Marine and Fisheries,
Dominion of Canada.

The memorial of the undersigned municipal corporations, persons and corporations respectfully showeth :

That at the height of land in St. Louis and Lake Counties, in Northern Minnesota, the waters from Birch lake and White Iron lake, and the streams running out thereof, and the immense watershed thereof, run northward and ultimately into Rainy lake and from there into Rainy river, passing into the Lake of the Woods.

That the water from this source forms by computation seven per cent of the water passing out of Rainy lake over Alberton falls at Koochiching.

That the water system of Rainy lake, Rainy river and the Lake of the Woods have long been established as a commercial highway.

That from the Canadian ports of Rat Portage and Fort Frances, two large and well-equipped passenger and freight lines ply daily during the season of navigation, forming the means of water communication between the Canadian ports of Rat Portage, Rainy River town, Boucherville, Barwick, Emo, Big Forks, Little Forks, Isherwood, Fort Frances, Bears' Pass, Seine river and Mine Centre, and forming along a considerable part of such route the only vehicle of passenger and freight communication.

That the most important section of the 200 miles of navigation is the Rainy river, flowing through what is rapidly becoming a thickly-populated and prosperous valley for some eighty odd miles, with towns rapidly building up at close intervals on its banks, dependent almost wholly on the river route for their mercantile and manufacturing interests.

That the fine class of steamboats plying on this water is already, in certain portions of the summer, hampered by low water on the rapids and shoals of the river, and the proprietors of the regular steamboat lines have been earnestly petitioning for such improvement being made on the river as would remove such disability, a disability that compels the withdrawal for considerable intervals during each summer of some of the large and deeper draught steamboats.

That in view of the fact that navigation is already suffering for lack of adequate water in portions of Rainy river and in portions of Rainy lake, your memorialists are surprised and alarmed to learn that active steps are being taken by a corporation named the Minnesota Canal and Power Company, Duluth, Minnesota, to obtain the authorization of the Federal government of the United States, through the Commissioner of the General Land Office at Washington, to construct a dam or dams and canal to divert all the waters of the Birch lake and White Iron lake watershed hereinbefore referred to, into the Embarrass river, and by it into Lake Superior, thus diverting from and robbing this long-established international waterway of Rainy lake and river of the large proportion mentioned of its tributary waters.

That if permission is given by the Federal government of the United States to the project of the said Minnesota Canal and Power Company, a disastrous injustice will be done to Canada, and American established navigation companies that are using the water highway of Rainy lake and river, and to the manufacturing towns along the river, both on the Canadian and United States sides. And a most dangerous precedent will be established, the consequences of which can hardly be estimated if any attempt to interfere with or divert from their natural flow be permitted of any portion of the waters of the great watershed lying between the Lake Superior slope and the northern slope.

Your memorialists would, therefore, most earnestly pray that the government of Canada should, in the interest of this important international navigation route, at once communicate with the Federal government of the United States and take prompt and active measures to avert the disastrous consequences of permission being unwittingly given by the General Lands Office at Washington to any scheme to interfere with or divert any portion of the waters tributary to the international waterways aforesaid.

(Sgd.) W. J. KEATING,
Mayor of Fort Frances.

(Sgd.) F. H. WARNER,
Clerk of Fort Frances.

Fort Frances, Ontario, March 17, 1904.

APPENDIX 'B.'

Whereas it has been reported that proposals have been made to divert from their present course certain lakes and streams in Northern Minnesota, which lakes and streams now form a part of the supply of waters of Rainy lake and river and the Lake of the Woods:

And whereas the diversion of these waters from their natural course is apt to cause a very material lowering of the waters of these lakes and river, thus entailing heavy losses to hydraulic power consumers, steamboat owners, and lumbermen who have invested their capital under existing conditions:

Therefore be it resolved that this municipal council of the town of Kenora do protest most emphatically against any interference with the natural flow of these waters, and that a copy of this resolution be forwarded to the Honourable Secretary of State for Canada, and to the Chief Engineer of the Deep Waterways Commission.

We hereby certify the foregoing to be a true copy of resolutions of the municipal council of the town of Kenora, adopted at meeting held July 4, 1906.

A. CARMICHAEL,
Mayor.

D. H. CUNIE,
Clerk.

APPENDIX 'C.'

RAINY RIVER NAVIGATION COMPANY, LIMITED.

KENORA, Ont., July 6, 1906.

J. G. SING,
Engineer in Charge, Dept. Public Works,
Toronto.

DEAR SIR,—Mr. Carmichael, our mayor, has informed me that you wished to know what effect the diverting of any water naturally feeding the Lake of the Woods would have on the business of our company. To this matter I have given a great deal of attention, and have followed the course of the water supply of Rainy river very carefully, and I am convinced that the water supply is not sufficiently great to allow of the diversion of any of the water without causing very serious loss to the transportation business. Of course, I am not an engineer and cannot give you any figures

with reference to this matter, but I can tell you from long practical observation that it would be a great detriment to navigation, should any water be diverted, as there is none to spare. I trust that our government will object strenuously to any diversion of the head waters of the Lake of the Woods.

Yours truly,

GEO. A. GRAHAM,
Manager.

APPENDIX 'D.'

KENORA, CANADA, July 4, 1906.

EXTRACT FROM MINUTES OF THE MEETING OF THE BOARD OF TRADE OF THE DISTRICT OF RAINY RIVER.

Whereas it has been learned by this board that an application has been made by the Minnesota Canal and Power Company for privileges to divert water from the Birch lake draining basin, in the state of Minnesota, to Lake Superior.

And whereas this board is assured that such diversion of the said water will have a serious effect upon the navigation of Rainy lake and Rainy river, by rendering impossible the present means of transportation for boats and vessels now plying upon the said waters, with a resultant heavy but undeserved loss to the owners of same, and a heavy blow to the trade and commerce of the district adjacent to said waters, and to the people relying upon the same, not only for means of navigation, but for power for manufacturing purposes.

Now, therefore, be it resolved that this board do hereby protest most emphatically against the diversion of the said waters as aforesaid, and would urge that the present levels of the said waters, having been adapted to existing requirements of navigation and the creation of electrical power, should be maintained.

And that a copy of this resolution be forwarded to the Honourable the Minister of Public Works and the member of this electoral district.

J. P. EARNFLY, *President.*
J. DEAN, *Secretary.*

APPENDIX 'E.'

TORONTO, July 21, 1906.

To the Chairman and Members of the International Waterways Commission.

GENTLEMEN,—I have the honour, in accordance with directions received from your honourable body during your recent meeting in Buffalo, to submit the following statement regarding the application of the Minnesota Power and Canal Company to divert the flow of certain waters forming the boundary between the United States and Canada, adjoining the state of Minnesota and province of Ontario.

I feel it would not be fair for any one to pass censure upon several of the technical arguments that have been advanced by the Minnesota Power and Canal Company in support of their application to divert waters from the drainage basin of Birch lake, unless any censure, so passed, was based upon exact knowledge resulting from special surveys and examinations of the territory likely to be affected by the diversion of said waters. Not possessing full data, resulting from such special surveys and examinations, I have considered it more profitable, for the purposes of your honourable commission, to express my views in the following manner :—

Permit me to make a few general remarks, and, first of all let me say, that deductions made from technical data and calculations, designed to exhibit the very small effects which the additions or subtractions of bodies of water may have upon the levels of certain other bodies of water in nature, are deductions which experience, in actual cases, has sometimes failed to substantiate.

As is well known, the changes our climate is manifesting, the denudation of timber lands, especially in localities such as the districts surrounding Rainy lake, Lake of the Woods and like influences, directly affect the run off from the watersheds; and the volume of water discharged from watersheds may, in time, become so changed as to materially, and disadvantageously affect the navigable properties of any waterways to which such watersheds contribute their supply.

When one appreciates the fact that a variation of a fraction of a foot in the depth of a waterway may be the factor which determines whether or not boats are able to navigate a certain channel, one can hardly be content to regard, without apprehension, the total removal of waters which are capable of rendering even small aid to navigation at times when that aid may be most necessary.

And, while it may be argued, that if waters are diverted from certain channels so that the levels in those channels are detrimentally affected, then other waters, elsewhere, may be reservoired so as to compensate for the effects of said diversion; nevertheless, one must consider whether or not it be wise to thus utilize stored waters to relieve an artificially created condition, when the future might possibly disclose a set of natural conditions that could only be relieved through the employment of these same systems of reservoirs.

It is a sense of the important bearing of the facts set forth in these remarks that cause me to say : that in my judgment, the absolute diversion, by the Minnesota Power and Canal Company, of the waters they desire, and which now contribute to the flow of waters in Rainy lake, and the Lake of the Woods and Rainy river, is a procedure which must disadvantageously affect the navigable properties of waterways which form a part of the international boundary between Canada and the United States.

In support of this opinion, I beg, respectfully, to submit the attached letters which express the views of parties whose interests are closely allied with the commercial navigation of some of these boundary waters.

It is apparent from these communications, that parties interested in the navigation of Rainy lake, Rainy river and the Lake of the Woods, view, with much apprehension, a proposal to divert waters, after the manner proposed in the application of the Minnesota Canal and Power Company.

There is, however, a phase of the discussion arising from the application of this company, which has appeared to me worthy of more serious and full consideration than, so far as I am aware, it has already had. That phase is the possible effect which the diversion of the waters of Birch lake drainage basin will have upon Basswood lake and the watercourses interconnecting it with Rainy lake.

It may be recalled that in addition to the water route from Lake Superior, westward, via the Grand Portage and the international boundary, there is the Canadian water route which has been traversed by many, and with troops and supplies, by the Red River expedition, in the early seventies.

Entering this Canadian route at Thunder bay, one proceeds, either by the old canoe route of the Hudson's Bay Company, or by the Dawson route to Lac des Mille Lacs,

thence, onward via the chain of waters to the international boundary, joining the boundary at Lac la Croix. From Lac la Croix to Rainy lake water transportation, comparatively good for this territory, is met with.

Now, Basswood lake, which is capable of being navigated by small steamers, also forms part of the international boundary lying to the east of Lac la Croix, and the waters of Lac la Croix are largely contributed to by the flowage through, and from, Basswood lake, which lake in turn, is chiefly fed from the waters which flow into it from the Birch Lake drainage basin.

The question therefore arises, what effect will the diversion of these Birch lake waters have upon the levels in Basswood lake, in Lac la Croix, and in those other waters which constitute the highway of water transportation to Rainy lake, Rainy river, Lake of the Woods and on to Lake Winnipeg?

In the course of the discussions which have taken place with respect to the application of the Minnesota Canal and Power Company, the applicants have undertaken to show that the removal of the volume of water which they desire to divert from the waters which now contribute to the flowage along the international waterway, would have a comparatively small effect upon the levels of Rainy lake and the Lake of the Woods, owing, chiefly, to the large areas of the watershed and great storage capacities of these bodies of water.

While it may be true that the area of watershed, viz., 670 square miles, corresponding to the volume of water, viz., 600 cubic feet per second, proposed to be diverted by the Minnesota Canal and Power Company, is, according to the data supplied by this company's engineers, approximately only four per cent of the total area tributary to Rainy lake, and approximately only 2·3 per cent of the total area tributary to the Lake of the Woods, yet, this area of 670 square miles, corresponding to the proposed diversion, is approximately 37 per cent of the total area tributary to Basswood lake.

In the absence of data giving the annual ranges of water levels on Lac la Croix and Basswood lake, I am unable to indicate the amount of the changes in levels, which the proposed diversion of Birch lake waters would entail. It seems evident, however, that a diversion of the waters of the Birch Lake drainage basin to the extent just stated, of 37 per cent of the total area tributary to Basswood lake, would undoubtedly have an immediate and great effect upon the levels in Basswood lake, and this effect would probably be noticeable to navigators along the water courses connecting Basswood and Rainy lakes. In other words, it might be affirmed that part of a great system of waterways, of more or less navigable waters, would be detrimentally affected by diverting from their flowage the waters proposed to be diverted by the Minnesota Canal and Power Company.

Again, when we consider the vast energies and sums of money which have actually been spent, and which, annually, are being expended by nearly all countries upon their internal waterways and canals, and when we consider, also, the chain of waters connecting—through many portages it is true—Lake Superior with the west, it might be too hasty a conclusion for anyone to state, that for navigation purposes, these waters might not be much improved. If such improvement is ever to take place, might it not require all the water naturally shedding from the territory through which this great waterway passes? Capitalists are reported to have already proposed the canalization of the waters lying between Lake Superior and Lake Winnipeg. In the particular territory under discussion, railway traffic through Fort Frances and Kenora could be better regulated if the waterways, along the international boundary, were kept open for the best water communication they were able to afford.

Clearly, if enterprises, such as the Minnesota Canal and Power Company could obtain the right to divert waters from channels having present, and admitting of future, improved navigation, then through such precedent, much of the safeguard to the interests of navigation would be removed.

In conclusion, I may say that I find myself unable to report with favour upon an application such as has been made by the Minnesota Canal and Power Company, until such time as it would be demonstrated that the interests of navigation in future,

would not be compromised by the removal of waters diverted after the manner in which the Minnesota Canal and Power Company propose to divert part of the waters which, naturally and materially, contribute to the flowage in the navigable channels of the international waterway between Canada and the United States.

In speaking of the canalization of the waters between Lake Superior and the Lake of the Woods, I find, upon reference to the report of the engineers who made the survey, that there are 311 miles of navigable waters between the summit near Lake Superior and the Lake of the Woods, and by the proper arrangement of a series of stop-log dams, and the construction of locks, these waters can be fully utilized for transportation purposes. The navigation, as proposed, would entail very little canal work, as the cutting would not amount to more than one mile in the entire distance of 311 miles.

In the development of this route, there is, under the present natural conditions, plenty of water, if conserved judiciously, for feeders, but it would not be safe to allow a diversion of any portion of the flow in an opposite direction to that intended by nature.

The total cost of opening up this route has been estimated at $1,500,000, by the engineers who made the survey.

This waterway, if fully developed, would prove a safeguard against excessive rates being charged on any railway that might parallel it.

I have the honour to be, gentlemen,
Yours obediently,

J. G. SING,
Engineer in Charge.

THOMAS COTÉ, Esq.,
Secretary, Canadian Section
International Waterways Commission,
Toronto, Canada.

THIRD REPORT OF THE CANADIAN SECTION, 1906.

REPORT OF THE CANADIAN SECTION OF THE INTERNATIONAL WATERWAYS COMMISSION FOR 1906.

OTTAWA, CANADA, January, 1907.

The Honourable, the Minister of Public Works, of the Dominion of Canada:—

SIR,—The Canadian members of the International Waterways Commission have the honour to submit the following report, with regard to the work of the commission during the year 1906:

Re NIAGARA FALLS.

In our report of April 25, 1906, we made the following recommendations with regard to the diversions from Niagara river and on the Niagara peninsula:

(*a*) In the opinion of this commission it would be a sacrilege to destroy the scenic effect of Niagara falls, unless, and until the public needs are so imperative as to compel and justify the sacrifice.

(*b*) It is possible to preserve its beauty, yet permit the development on the Canadian side at the Niagara river itself and elsewhere by diversions on the Niagara peninsula to Lake Ontario, of water for power purposes to the extent of not more than 36,000 cubic feet per second, exclusive of water required for domestic uses, and for the service of locks in navigation canals.

(*c.*) It is likewise possible to allow the diversion of waters for power purposes on the American side to the extent of 18,500 cubic feet per second, exclusive of the amount required for domestic uses, without serious injury to the scenic aspect of the falls.

(*d*) Your commission are of opinion, therefore, that for the present the diversions should be limited to the quantities mentioned in sub-sections *b* and *c*.

(*e*) This would give an apparent advantage to the Canadian interests, but, as the diversion is not of serious injury to the falls and does not materially affect the interests of navigation, it is more than counterbalanced by the complete diversion of 10,000 cubic feet by way of the Chicago drainage canal to the Mississippi river.

Later on, the joint commission in the report of May 3, 1906, expressed the following views and recommendations:—

1. In the opinion of the commission, it would be a sacrilege to destroy the scenic effect of Niagara falls.

2. While the commission is not fully agreed as to the effect of diversions of water from Niagara falls, all are of the opinion that more than 36,000 cubic feet per second on the Canadian side of the Niagara river or on the Niagara peninsula, and 18,500 cubic feet per second on the American side of the Niagara river, including diversions for power purposes on the Erie canal, cannot be diverted without injury to Niagara falls as a whole.

3. The commission, therefore, recommends that such diversions, exclusive of water required for domestic use or the service of locks in navigation canals, be limited on the Canadian side to 36,000 cubic feet per second, and on the United States side to 18,500 cubic feet per second (and in addition thereto, a diversion for sanitary purposes not to exceed 10,000 cubic feet per second, be authorized for the Chicago drainage canal), and that a treaty or legislation be had, limiting these diversions to the quantities mentioned.

The effect of the diversion of water by the Chicago drainage canal upon the general navigation interests of the Great Lakes system will be considered in a separate report.

The Canadian section, while assenting to the above conclusions, did so upon the understanding that in connection therewith should be expressed their view that any treaty or arrangement as to the preservation of Niagara falls, should be limited to a term of twenty-five years, and should also establish the principles applicable to all diversions or uses of waters adjacent to the international boundary, and of all streams which flow across the boundary.

The following principles are suggested:—

1. In all navigable waters the use for navigation purposes is of primary and paramount right. The Great Lakes system on the boundary between the United States and Canada, and finding its outlet by the St. Lawrence to the sea, should be maintained in its integrity.

2. Permanent or complete diversions of navigable waters or their tributary streams, should only be permitted for domestic purposes and for the use of locks in navigation canals.

3. Diversions can be permitted of a temporary character, where the water is taken and returned, when such diversions do not interfere in any way with the interests of navigation. In such cases each country is to have a right to diversion in equal quantities.

4. No obstruction or diversion shall be permitted in or upon any navigable water crossing the boundary or in or from streams tributary thereto, which would injuriously affect navigation in either country.

5. Each country shall have the right of diversion for irrigation or extraordinary purposes in equal quantities of the waters of non-navigable streams crossing the international boundary.

6. A permanent joint commission can deal much more satisfactorily with the settlement of all disputes arising as to the application of these principles, and should be appointed.

'The American members are of opinion that the enunciation of principles to govern the making of a general treaty is not within the scope of their functions; moreover the jurisdiction of the American members is restricted to the Great Lakes system.'

The quantity allowed to be diverted on the Canadian side was fixed at an amount, which, it was assumed, would allow the companies on that side to complete the works which they had under construction, as follows:—

	Cubic Feet.
Canadian Niagara Power Company	9,500
Ontario Power Company	12,000
Electrical Development Company	11,200
Niagara Falls Park Railway Company	1,500
Welland Canal, or its tenants (in addition to lock service)	1,800
Total	36,000

Producing about 425,000 horse-power. Amount allowed, 36,000 cubic feet.

On the American side the works in operation, or in course of construction, were as follows:—

	Cubic Feet.
Niagara Falls Hydraulic and Manufacturing Company	9,500
Niagara Falls Power Company	8,600
Erie Canal, or its tenants (in addition to lock service)	400
Total	18,500

Amount allowed, 18,500 cubic feet.

The matter was a subject of special legislation in the United States Congress, and what is known as the Burton Bill was passed and received the approval of the President in the following form:—

'A bill for the control and regulation of the waters of Niagara river, for the preservation of Niagara falls, and for other purposes.'

Be it enacted by the Senate and House of Representatives of the United States of America, in Congress, assembled.

That the diversion of water from Niagara river or its tributaries, in the state of New York, is hereby prohibited, except with the consent of the Secretary of War as hereinafter authorized in section two of this Act : Provided, That this prohibition shall not be interpreted as forbidding the diversion of the waters of the great lakes or of Niagara river for sanitary or domestic purposes, or for navigation, the amount of which may be fixed from time to time by the Congress of the United States or by the Secretary of War of the United States, under its direction.

Sec. 2. That the Secretary of War is hereby authorized to grant permits for the diversion of water in the United States from said Niagara river or its tributaries for the creation of power to individuals, companies or corporations which are now actually producing power from the waters of said river, or its tributaries, in the state of New York, or from the Erie canal; also permits for the transmission of power from the Dominion of Canada into the United States, to companies legally authorized therefor, both for diversion and transmission, as hereinafter stated, but permits for diversion shall be issued only to the individuals, companies or corporations as aforesaid, and only to the amount now actually in use: Provided, that the said secretary, subject to the provisions of section five of this Act, is hereby authorized to grant revocable permits, from time to time, to such individuals, companies or corporations, or their assigns, for the diversion of additional amounts of water from the said river or its tributaries to such amount, if any, as in connection with the amount diverted on the Canadian side, shall not injure or interfere with the navigable capacity of said river, or its integrity and proper volume as a boundary stream, or the scenic grandeur of Niagara falls ; and that the quantity of electrical power which may, by permits, be allowed to be transmitted from the Dominion of Canada into the United States, shall be one hundred and sixty thousand horse-power: Provided further, that the said secretary, subject to the provisions of section five of this Act, may issue revocable permits for the transmission of electrical power so generated in Canada, but in no event shall the amount included in such permits, together with the said one hundred and sixty thousand horse-power, and the amount generated and used in Canada, exceed three hundred and fifty thousand horse-power: Provided always, that the provisions herein permitting diversions and fixing the aggregate horse-power herein permitted to be transmitted into the United States, as aforesaid, are intended as a limitation on the authority of the Secreary of War, and shall in no wise be construed as a direction to said secretary to issue permits, and the Secretary of War shall make regulations preventing or limiting the diversion of water and the admission of electrical power as herein stated; and the permits for the transmission of electrical power issued by the Secretary of War may specify the persons, companies or corporations by whom the same shall be transmitted, and the persons, companies or corporations to whom the same shall be delivered.

Sec. 3. That any person, company, or corporation diverting water from the said Niagara river or its tributaries or transmitting electrical power into the United States from Canada, except as herein stated, or violating any of the provisions of this Act, shall be deemed guilty of a misdemeanor, and on conviction thereof shall be punished by a fine not exceeding two thousand five hundred dollars nor less than five hundred dollars, or by imprisonment (in the case of a natural person), not exceeding one year, or by both such punishments, in the discretion of the court. And, further, the removal of any structures or parts of structures erected in violation of this Act, or any construction incidental to or used for such diversion of water or transmission of

power as is herein prohibited, may be enforced by the order of any circuit court exercising jurisdiction in any district in which the same may be located, and proper proceedings, to this end, may be instituted under the direction of the Attorney-General of the United States.

Sec. 4. That the President of the United States is respectfully requested to open negotiations with the Government of Great Britain for the purpose of effectually providing, by suitable treaty with said government for such regulation and control of the waters of Niagara river and its tributaries, as will preserve the scenic grandeur of Niagara falls and of the rapids in said river.

Sec. 5. That the provisions of this Act shall remain in force for three years from and after date of its passage, at the expiration of which time all permits granted hereunder by the Secretary of War shall terminate, unless sooner revoked, and the Secretary of War is hereby authorized to revoke any or all permits granted by him by authority of this Act, and nothing herein contained shall be held to confirm, establish, or confer any rights heretofore claimed or exercised, in the diversion of water or the transmission of power.

Sec. 6. That for accomplishing the purposes detailed in this Act the sum of fifty thousand dollars, or so much thereof as may be necessary, is hereby appropriated from any moneys in the treasury not otherwise appropriated.

Sec. 7. That the right to alter, amend or repeal this Act is hereby expressly reserved.'

It will be seen that this bill is only a temporary measure, and intended to control conditions at Niagara, pending the negotiation of a treaty.

In the meantime application has been made by the Secretary of War of the United States for the privilege of exporting into the United States, power, as follows:

The Ontario Power Company	90,000 h. p.
The Canadian Niagara Power Company	125,000 h. p.
The Electrical Development Company	62,000 h. p.

Final action has not as yet been taken. but in the meantime it has been recommended by the American section that permits be granted as follows:—

The Ontario Power Company	60,000 h. p.
The Canadian Niagara Power Company	60,000 h. p.
The Electrical Development Company	37,500 h. p.
The International Railway Company	2,500 h. p.

In the opinion of your commission, if any treaty be had with relation to use of these waters, the proportions recommended and agreed upon by the joint commission should be adhered to.

The Ontario Power Company, through its ally, the Niagara Lockport and Ontario Company, has built transmission lines in New York State, in duplicate, and in branches, throughout a territory one hundred and fifty miles long and twenty miles wide at an expense of upwards of $4,000,000, and for several months has been delivering power at the extreme end of the line.

This company has not so far made any serious effort to supply the Ontario market.

Mr. Paul K. Cravath, representing the Niagara Lockport and Ontario Power Company, in his address before the Secretary of War at Washington, stated that his company had entered into a contract with the Ontario Power Company to take from them a minimum of 60,000 horse-power at the international boundary line, and had reserved the option to take increased power to the amount of 180,000 horse-power, which would be the total capacity of the Ontario Power Company's works.

This company has neglected the city of Buffalo, leaving that market to the Canadian Niagara Power Company, and has extended its lines to Rochester and Syracuse. They are at present developing something under 60,000 horse-power, and it is stated by Mr. Cravath that they have already existing closed contracts for 90,000 horse-power, all on the American side.

The Canadian Niagara Falls Power Company are in a position to develop at present about 55,000 horse-power, all of which will be supplied to customers in the neighbourhood of Niagara falls on the American side, and to the city of Buffalo and its contiguous outlying districts.

This corporation has not made any effort so far to supply the Canadian market.

The Electrical Development Company, which is more particularly a Canadian corporation, has built a transmission line to the city of Toronto. They have qualified themselves to produce about 50,000 horse-power in the immediate future.

This company is making strenuous efforts to have immediate permission to export to the United States, power to the extent of 53,000 horsepower.

In view of these conditions, and of the special advantages which will be created by a treaty arrangement, your commission would respectfully reiterate the views which they expressed in their report of the 25th of April, 1906, that your government, while fully recognizing the rights of these corporations, should so control the export of power from Canada as to protect public interests.

Your commission are of opinion that when each of the companies, in their agreement with the Park Commissioners, stipulated that they would, 'whenever required, from the electricity or pneumatic power, generated under this agreement, supply the same in Canada (to the extent of any quantity not less than one-half the quantity generated), at prices not to exceed the prices charged to cities, towns and consumers in the United States, at similar distances from the Falls of Niagara, for equal amounts of power and for similar uses.' They do not comply with the conditions of their agreement unless and until they have severally or jointly built transmission lines in Canada to an equal extent as in the United States.

Your commission is of opinion that it was of the spirit of the agreement if not the letter that the companies should themselves reach out to and supply the Canadian public, and that it is not a fair interpretation of the agreement that Canadian consumers should be expected to build transmission lines to Niagara falls as a condition of receiving any benefit from this public utility.

Irrespective of any agreement, private corporations using the natural resources of Canada, should, in the opinion of your commission, be compelled to operate the same, so as to afford adequate service in the first place to the Canadian public, and export of power at Niagara should only be allowed to the extent of the surplus after the Canadian market has been fully supplied under reasonable conditions and at fair prices.

THE DETROIT RIVER TUNNEL COMPANY.

The commission has considered the application of the Detroit River Tunnel Company for permission to tunnel the Detroit river. The regulations determined by the United States War Department were as follows :—

(*a*) That all operations shall be under the supervision and, so far as concerns the interests of navigation in the waters of the United States, under the control of the officer of the corps of engineers whose district includes the Detroit river; and who is hereinafter referred to as the district engineer. The Tunnel Company shall furnish such assistance and appliances as the district engineer shall require in supervising and inspecting the work.

(*b*) That the work of contructing the subaqueous portion of the tunnel shall begin at the American bank of the river, and proceed continuously toward the Canadian bank, in order that the working force may acquire experience and training at work where the water is shallowest and less used for navigation; thereby insuring the greatest rate of progress when operations approach the Canadian side and cross the path usually followed by vessels engaged in through traffic.

(*c*) That the Detroit River Tunnel Company may, in the prosecution of this work, use a pile platform of the general character described in its application, or, at its option, a floating platform of type to be approved by the district engineer. Whatever

the character of platform used, its length, including all floating plant used in connection with it, shall at no time exceed 600 feet, measured transversely to the axis of the stream, and its width measured parallel to this axis, shall be not more than 300 feet.

(*d*) That due notification, in writing, shall be given to the district engineer of the beginning of dredging operations in the navigable waters of the United States, and that thereafter these dredging operations and the subsequent operations of tunnel extension and completion shall be pushed continuously, except when the river is obstructed by ice, and at a rate of not less than 2,000 cubic yards per day for the dredging, and ten feet per day of completed tunnel, the rate for the tuunel work to be figured from time to time of completion of the first section, 600 feet in length, of the erecting platform, floating or otherwise.

(*e*) That for the purpose of controlling and safeguarding navigation in the vicinity of the site of the proposed tunnel, the Detroit River Tunnel Company shall, at its own expense, furnish a fully-equipped tug of suitable size and power, to be constantly on duty at the site of the work, and, so far as the above purpose is concerned, under the exclusive control and direction of the district engineer. The Tunnel Company shall also maintain such lights as the district engineer shall require for properly marking every obstruction to navigation that may be introduced in connection with the work in progress.

These regulations were accepted with the approval of the Canadian Department of Marine and Fisheries, and the following resulution was adopted:—

'That the International Waterways Commission approve of the plans of the construction of a tunnel under the Detroit river, prepared by the Detroit River Tunnel Company, and submitted to the commission by the Chief of Engineers of the United States Army, under date of February 13, 1906, and to the Minister of Marine and Fisheries for Canada, under date of November 16, 1905, the construction to be carried on on the American side under the regulations contained in the report of the Board of Engineers of the United States Army of date January 26, 1906, and that the same be carried on on the Canadian side under regulations to be fixed by the Minister of Public Works and the Minister of Marine and Fisheries.'

The plan and mode of construction having been submitted to the Minister of Public Works, were approved by the Governor General in Council on July 12, 1906, copy of the minutes are appended, marked 'A.'

The tunnel is in course of construction, and it is expected will be completed within two years.

THE USES AND CONDITIONS OF THE WATERS OF ST. MARY'S RIVER AT SAULT STE. MARIE.

This question was disposed of by an unanimous report of the joint commission, dated May 3, 1906, in which the following recommendations were agreed upon:—

1. That no permits shall be granted for the use of the waters of St. Mary's river, or for the erection of structures in, under or over, or the occupation in any manner of the said waters, until plans have been submitted to the commission for its investigation and recommendation; and the use of the waters under such permits, shall not be allowed, except upon compliance with the rules hereinafter recommended.

2. The commission further recommends that no grants, permits, or concessions should be made, which directly or by operation of law may, in any manner affect the right of the United States or of Canada to control the bed of the St. Mary's river below high-water mark, and especially that none should be made which legally or equitably may be the means of adding to the expense of acquiring lands or rights for the purpose of making improvements in aid of navigation, or which may give an equitable right to compensation in case of the removal of structures in said river.

3. That steps be taken to increase the lockage facilities at the Sault Ste. Marie without unnecessary delay.

4. That the Governments of the United States and Canada reserve all water necessary for navigation purposes, at present or in the future, and the surplus shall be divided equally between the two countries for power purposes.

5. As the Commission regards the interests of the United States and Canada in the preservation of the lake levels, and in the improvement of the channels and the conservation of the water supply for purposes of navigation as identical and as incapable of efficient protection without joint and harmonious action on the part of the two governments, it recommends that the rules hereinafter set forth be adopted, and that a joint commission be created to supervise their enforcement, or that such powers be vested in the existing International Waterways Commission, subject to such restrictions and reservations as may be deemed advisable.

The Secretary of War, in his annual report makes reference to these recommendations as follows:—

'These recommendations received my approval. Embodied in the report were a series of rules and regulations to govern the use of water at the Sault. As the enforcement of these rules involves the creation of a permanent international commission, they have not, as yet, been put in force. It is to be presumed that provision for a permanent commission will be arranged in a treaty. The report was approved by me, and was referred to the Secretary of State.'

A letter from the Acting Secretary of State, to the Secretary of War, relating to the same subject, is hereto appended, and marked 'B.'

THE MASSENA WATER POWER COMPANY.

This question was brought before the Commission by a letter from the Secretary of the Department of Public Works of Canada enclosing letter from the Calvin Company, Limited, to the Honourable the Minister of Public Works, protesting against construction of a dam, which is in contemplation by the Massena Power Company, in the channel of the St. Lawrence River, south of the Long Sault Island.

As the proposed works would be entirely in the United States territory, construction could not, in any case, be permitted without the concurrence of the War Department of the United States, but as no application had been made to that department or this commission, no action was thought necessary.

THE PRESERVATION OF THE CANADIAN SHORE ALONG THE DETROIT RIVER.

At the meeting, held by the commission on May 3, 1906, at Buffalo, N.Y., Mr. Louis Coste, one of the Canadian Commissioners, brought up the question of the injury done to the banks of the connecting channels of the Great Lakes by reason of the speed of the boats traversing those channels.

A petition from the reeve of the township of Malden, in the county of Essex, to the International Waterways Commission, copy of which is appended, marked 'C.' was presented to the commission. An investigation took place, and the commission decided that every effort should be made to assist the riparian owners in the protection of their property, and an appeal was made to the Engineer officer in charge of the improvements on the river, with the result that provision was made in a recent contract, under his charge, for protecting the Canadian shores by depositing boulders along that shore.

The Canadion section of the commission, in their investigation, reached the conclusion that the removal of large quantities of sand from the Canadian shore by sand suckers, is one of the causes of the cutting away of the bank, and they strongly recommend that steps be taken to prevent this practice.

THE APPLICATION OF THE MINNESOTA CANAL AND POWER COMPANY.

The Minnesota Canal and Power Company, a corporation organized under the laws of Minnesota, proposed to construct reservoirs in the Birch Lake basin in Minnesota, and to conduct the water to be stored therein by artificial and natural channels southward to Duluth. The natural drainage of the Birch Lake basin is northward into the Rainy river, Lake of the Woods, Winnipeg lake, and finally into the Hudson bay, the water thus forming a part of the International boundary, and finally entering territory which is exclusively Canadian.

At the request of the British Ambassador, that action be deferred until the matter be investigated by the International Waterways Commission, the Department of the Interior suspended action, and the subject was finally referred to the commission in compliance with a request contained in a letter, dated May 14, 1906, from the Secretary of State to the Secretary of War. The commission rendered a joint report to the two governments, dated November 15, 1906, in which are the following recommendations, viz. :—

1. The commission would, therefore, recommend that the permit applied for be not granted without the concurrence of the Canadian government.

2. As questions involving the same principles and difficulties, liable to create friction, hostile feelings, and reprisals, are liable to arise between the two countries, affecting waters on or crossing the boundary line, the commission would recommend that a treaty be entered into which shall settle the rules and principles upon which all such questions may be peaceably and satisfactorily determined as they arise.

3. The commission would recommend that any treaty which may be entered into should define the uses to which international waters may be put by either country without the necessity of adjustment in each instance, and would respectfuly suggest that such uses should be declared to be :

(*a*) Use for necessary domestic and sanitary purposes.

(*b*) Service of locks used for navigation purposes.

(*c*) The right to navigate.

4. The commission would also respectfully suggest that the treaty should prohibit the permanent diversion of navigable streams which cross the international boundary or which form a part thereof, except upon adjustment of the rights of all parties concerned by a permanent commisison, and with its consent.

The Secretary of War, in his report, says, 'I still have this matter under advisement, and expect to render my decision at an early date.'

THE CHICAGO DRAINAGE CANAL.

The diversion by the Chicago Drainage Canal of a large volume of water otherwise tributary to the Great Lakes system, has been in consideration by your commission, and a number of public meetings have been held at which the various interests have been represented.

The commission hope at an early date to be able to agree upon conclusions and recommendations in regard to this important subject, and submit the same in a special report.

THE APPLICATION OF MR. SMITH L. DAWLEY FOR PERMISSION TO DEVELOP POWER AT LONG SAULT RAPIDS.

In May last, application (copy appended, marked 'D'), was made to the Secretary of War of the United States, by Mr. Smith L. Dawley, of Ogdensburg, for permission to construct dykes, retaining wall and such other structures as may be necessary for the development of a water power in connection with navigable approaches to a summer resort, on the United States side of the Long Sault rapids in the St. Lawrence river.

The commission have been unable to obtain from the promoters the information necessary to enable them to form an opinion upon the effect which the granting of this charter would have upon navigation interests, and in the meantime action has been deferred.

THE QUESTION OF A TUNNEL AND INLET PIER FOR THE BUFFALO WATERWORKS.

At a meeting of the commission, held on June 26, 1906, at Buffalo, N.Y., Col. F. G. Ward, Commissioner of Public Works, of the city of Buffalo, appeared before the commission and stated that the proposed location of the inlet pier for the new waterworks tunnel for the city was in Canadian waters. He further stated that he had requested the American authorities to make application to the Canadian government to be authorized to erect the inlet pier in this location, copy of said application to the Governor General in Council and to the Minister of Public Works appended, marked 'E' and 'F' respectively.

Part of the proposed works being in Canadian waters, the matter was reported upon by Col. H. M. Adams, Corps of Engineers, United States Army, copy of said report appended, marked 'G.'

Application was also made by the city of Buffalo, to Honourable Wm. H. Taft, Secretary of War, copy of said application appended, marked 'H.'

The commission having satisfied themselves that the proposed undertaking would not interfere with navigation, passed the following resolution :—

Resolved, That in the opinion of the International Waterways Commission, the tunnel and inlet pier, proposed to be constructed in Lake Erie, by the city of Buffalo for the purpose of furnishing a pure water supply to the city, can be built without injury to navigation or other public interests, and it is recommended that permits for the construction of these works be granted with the proviso that the inlet pier be kept properly lighted at night at the expense of the city.

(Signed) GEO. C. GIBBONS,
Chairman, Canadian Section.

(Signed) O. H. ERNST,
Chairman, American Section.

Attest :
THOMAS COTÉ,
Sec. Canadian Section.

The Canadian government endorsed the above resolution by a minute of the Privy Council, dated July 20, 1906, copy of which is appended, marked 'I.'

NAVIGATION AND POWER DEVELOPMENT ON THE RICHELIEU RIVER.

An application (copy appended, marked 'J'), which was made by the International Development Company for permission to construct regulating works in Richelieu river in connection with a combined navigation and power project, was referred by the Secretary of War of the United States to the commission, by which it was considered at their meeting at Buffalo, November 13th and 15th.

The joint commission made a full report upon this subject, which has been submitted to both governments, from which the following is an extract :—

'As Lake Champlain is wholly within the territory of the United States, and the proposed works are wholly within Canadian territory, the international questions raised are of some moment. It is, in our opinion, not desirable that either nation should obstruct the natural flow of streams crossing the international boundary to the

injury of public or private rights in the other. It is manifest, therefore, that the applicants should furnish conclusive evidence that private rights in the States of New York and Vermont, adjoining Lake Champlain, will not be injuriously affected by the alteration of the lake level as proposed, and that as the Secretary of War of the United States has control of the interests of navigation on Lake Champlain, the said work should not be undertaken without his permission, and should be operated under such regulations as he may direct, with a view to the maintenance of the level of the said lake, as the interests of navigation thereon require. It would be possible to plan works adapted to the conditions, and in our opinion such works should be permitted, provided they do not interfere with private interests in the United States, and meet with the approval of the Secretary of War, as suggested. We respctfully submit that in any treaty to be had between the two nations in relation to the use of international waters, the principles above suggested should have consideration. We would further suggest that the applicant's Canadian Act of incorporation should be amended so as to provide that the maintenance of the works sought to be erected shall be conditional at all times upon compliance with all regulations imposed by the Secretary of War of the United States of America, from time to time, for the preservation of the levels of Lake Champlain.

THE IRRIGATION QUESTION.

The question of the use of the waters of St. Mary's and Milk rivers, in the state of Montana, and the province of Alberta, was brought before the commission, but no action could be taken in the matter, since the American section did not consider that it lay within their powers to deal with the questions.

It may be of interest, however, to give here a brief statement of the salient points of the question. St. Mary's and Milk rivers both rise in Montana, a few miles south of the boundary line (49th parallel), the former in the Rocky mountains, the latter, farther east, from the eastern slopes of the foot-hills. Both rivers flow north into Canada, but Milk river, after a course of over one hundred miles, recrosses the boundary line and finally falls into the Missouri river.

On both sides of the boundary line, in the region which may be reached by irrigation canals, from these rivers, is a large tract of semi-arid country, of little use in its natural condition, but capable of vast development when a regular supply of water is assured. It is probable that the whole water supply of the two rivers might be put to beneficial use on either side of the boundary line. Of the two rivers, the St. Mary's is the more valuable for irrigation purposes, since it is the larger river in average flow, and also has a more constant supply, from the melting of snow at its mountain sources, during the hot months.

In the early days of irrigation in the Western States, the waters of streams were treated by riparian proprietors as property appertaining to their lands, which they could divert at will, without reference to the rights of other riparian owners. As the water used in irrigation is in great part, if not altogether, absorbed by growing vegetation, or dispersed by evaporation, little is returned to the river below, and the common law rights of the lower proprietors, to the natural flow through their lands, were impaired.

This was of little consequence when irrigating works were limited to the supply of a few cultivated acres, but when the advantages of irrigation came to be more fully recognized, and developments became more extensive, conflicts of interests multiplied, and the necessity of regulation of diversions by law became evident.

Laws for this purpose have been adopted by the several states in which irrigation is employed. These laws vary in different states, and it is not the intention here to discuss the details of the differences between different laws. The general principle behind them all is, however, the rights of the first diverter of water to his beneficial use; assertion of intention to divert is required by record in the registry office, by notice posted

at the place of intended diversion, by newspaper advertisement, or the like. Difficulties arise, when there is no authority to apportion the water, from excessive appropriation by one owner to the detriment of the rest, and from the fact that records made against the same stream in different districts are not easily accessible; the intending irrigator has difficulty in ascertaining either what appropriations have been made which will lessen the flow to him, or those which have been made below him, and which he should respect.

It was the good fortune of Canada to be able to deal with these questions before they became complicated by vested private interests. In 1894 an Act of Parliament was passed by which the right of use of waters available for irrigation was vested in the Crown, and provision was made for apportionment of the waters, under regulations to be made by the Minister of the Interior. Surveys were made by the Dominion government to ascertain the most favourable locations for irrigation works, in order that the water might be used to the best advantage. Several irrigation projects have been developed under this policy, of which the Alberta Railway and Irrigation Company, whose canals connect with both the St. Mary's and the Milk river, is particularly concerned in the present question.

In 1901 an Act of Congress was passed having similar objects. Under this Act, a fund constituted by the sales of public lands in the west is to be used for the construction of irrigation works, where the same will be profitable. The administration of the fund is in the hands of the Reclamation Branch of the United States Geological Survey.

While the two laws are alike in establishing federal control of the use of water, they differ in that, under the American law the construction is carried on by public money, the cost being chargeable against the lands benefited. Under the Canadian Act construction is carried on by individuals or companies, but strictly under control of the government which controls the general plan of the works and prescribes the amount of water which may be diverted at a given place, the quantity which may be used for watering a given acreage, and the price which may be charged to the settler for it. The company is compensated for its work by an allowance on the price of the land sold.

The Alberta Railway and Irrigation Company, organized in 1898, has an extensive canal system supplied from St. Mary's river. They have also a canal by which water may be taken from Milk river, but this has not yet been put in operation.

One of the projects of the United States Reclamation Service is the diversion of water from St. Mary's river to irrigate land chiefly situated in the lower Milk river region. The canal for this purpose may either discharge into Milk river, whose natural channel would be utilized to carry the water through Canada to where it is to be used, or by a more southern route.

Fears have been expressed that this diversion may prejudicially affect the present settlements on the Alberta Railway and Irrigation Company's lands in Canada, or the future development, which may, in the natural course of things, be expected in that region, and the matter has been the subject from time to time of diplomatic exchanges between Ottawa and Washington, but no basis of agreement has yet been reached.

The Secretary of War, in his report for the past year, referring to the question of jurisdiction, says:

'Under the law of Congress creating the commission, its jurisdiction is limited to the waters whose natural outlet is by the River St. Lawrence to the Atlantic ocean. The Canadian government has, from the beginning, desired that the commission should consider all questions which may arise concerning the international waters from the Atlantic to the Pacific. To enable the American members to do this, further legislation by Congress is necessary. It would seem proper to comply with the wishes of the Canadian government in this respect.'

If the jurisdiction of this commission is extended as suggested, the matter can be taken up and no doubt some equitable plan of division of these waters can be suggested under the direction of the joint commission.

THE LAKE ERIE BOUNDARY QUESTION.

On August 21, last, Captain Dunn, of the Canadian Fisheries cruiser *Vigilant* seized, as being in Canadian waters, certain nets, the property of the Keystone Fish Company, of Erie, Pa., which had been set in Lake Erie to the north-northwest of Erie. Copy of the departmental instructions under which Captain Dunn made the seizure is appended, marked 'K.'

It was claimed by the Keystone Fish Company that the nets were in American waters, and protest was made to the United States government against the action of Captain Dunn.

The condition seems to be complicated by differences in the charts as regards the position of the boundary line.

The question was referred to the International Waterways Commission to ascertain whether the American and Canadian charts of the locality agree as to the distance which should be logged from the gas buoys at Erie to the boundary line. The correspondence relating to the complaint of the Keystone Fish Company and the reference to the commission will be found appended, marked 'L.'

The subject is about to be dealt with in a special report of this commission which will be submitted in due course.

THE QUESTION OF CONTROLLING WORKS AT THE OUTLET OF LAKE ERIE.

This question, which was especially referred to the commission by the Act of Congress of 1902, will be taken up by the commission at an early date.

THE DEATH OF MR. GEORGE Y. WISNER.

Early in July, the commission lost one of its most distinguished members in the person of Mr. George Y. Wisner, hydraulic engineer of the city of Detroit, Mich. At a meeting held in Toronto on July 24, the appointment of Mr. E. E. Haskell, of Detroit, by the United States government was announced and the new commissioner presented. At that meeting it was moved by Mr. Gibbons, chairman of the Canadian section, seconded by Mr. Clinton and

Resolved, That the members of the International Waterways Commission have heard with profound regret of the decease of their colleague, George Y. Wisner, Esq., on July 3, at Detroit, Michigan. In the death of this eminent engineer the commission has lost an able adviser and valued associate. Upon the great experience and acquirements of Mr. Wisner the commission always felt it could rely; his fair-mindedness it has never doubted, and his devotion to his duties has ever assured the full and able performance of his duties as a commissioner. To his widow and family we extend our most sincere sympathy.

That this resolution be inscribed on the minutes and a copy be forwarded to Mrs. Wisner.

CONCLUSIONS.

It will be seen that the joint commission have made recommendations leading up to the formation of a treaty of the most important character, and one which will establish for the first time general principles governing the use and diversion of international and boundary waters.

1. The report with regard to the Minnesota diversion establishes the principle that there should be no permanent diversion of navigable streams which cross the international boundary or which form a part thereof, except upon adjustment of the rights of all parties concerned by a permanent commission and with its consent, save:

(*a*) Use for necessary domestic and sanitary purposes.

(*b*) Service of locks used for navigation purposes.

(*c*) The right to navigate.

2. The report on the Richelieu river application establishes the principle that neither country should allow any obstruction in the waters of streams which cross the international boundary which would interfere with the natural course of such waters to the injury of public or private rights in the other country.

3. Where temporary diversions of the surplus water can be permitted as at Sault Ste. Marie, such diversion should be permitted in like quantity to each country, under the supervision of a joint commission.

4. The position at Niagara falls has been dealt with having regard to the exceptional circumstances there existing and taking into consideration the large permanent diversion by way of the Chicago drainage canal.

5. Other important reports will be submitted in the near future, all leading up to the permanent settlement of questions, which unadjusted would be fruitful sources of irritation.

Your commission desire again, as in their former report, to acknowledge the fair spirit in which all the members of the American commission deal with international questions.

Respectfully submitted,

GEO. C. GIBBONS,
Chairman, Canadian Section.

W. F. KING,
Member, Canadian Section.

LOUIS COSTE,
Member, Canadian Section.

THOMAS COTE,
Secretary, Canadian Section.

APPENDIX 'A.'

EXTRACT from a report of the Committee of the Privy Council, approved by the Governor General on July 12, 1906.

On a report, dated June 29, 1906, from the Minister of Public Works, submitting that by the Act 51 Victoria, chapter 93 (1888), the Canada and Michigan Tunnel Company was incorporated, having powers thereby conferred for the building of a tunnel under the Detroit river for railway purposes, from some point at or near the town of Windsor or the town of Sandwich, towards the city of Detroit, and by the 35th section of this Act it was provided as follows:—

'35. The company shall not commence the said tunnel or any work thereto appertaining until it has submitted to the Governor in Council plans of such tunnel and of all the intended works thereunto appertaining, nor until such plans and the site of such tunnel have been approved by the Governor in Council, and such conditions as he thinks fit for the public good to impose; nor shall any such plan be altered, or any deviation therefrom allowed, except by the permission of the Governor in Council, and upon such conditions as he imposes.'

That by the Act 58-59 Victoria, chapter 71 (1895), the name of the company was changed to the 'Canada and Michigan Bridge and Tunnel Company,' and the undertaking of the company was declared to be a work for the general advantage of Canada.

That by the Act 4-5 Edward VII., chapter 69 (1905), the construction of the tunnel or tunnels authorized by the Acts relating to the company were to be commenced within three years and completed within ten years from the passing of the Act.

That the company, pursuant to the powers contained in said firstly mentioned Act, amalgamated with the Michigan and Canada Bridge Tunnel Company, and formed a new corporation under the name of the 'Detroit River Tunnel Company,' and the agreement of amalgamation was duly filed in the office of the Secretary of State of Canada, on August 23, 1905, notice of the amalgamation, the location of the office in Canada, and the name of the corporation was duly published in the *Canada Gazette*.

The Minister states that on May 3, 1906, the Detroit River Tunnel Company has submitted for approval plans of the tunnel as proposed and of the site thereof, the said tunnel starting from a point in the city of Windsor towards the city of Detroit.

That similar plans for the construction of the said tunnel have been approved of by the Secretary of War for the United States, so far as the said tunnel is within the jurisdiction of the United States (copy of instrument dated April 9, 1906, is submitted, giving permission for the construction and maintenance of said tunnel).

That the Chief Engineer of the Department of Public Works has reported to the effect that the work is well located, that the site is acceptable, and that the general design for the construction is satisfactory.

The Minister, in view of the foregoing, recommends that authority be given for the approval of the plans of tunnel and of site above-mentioned, subject to the following conditions:--

That all operations shall be under the supervision and so far as concerns the interests of navigation in the waters of the Dominion of Canada, under the control of an officer to be appointed by the Department of Public Works, who is hereinafter referred to as the engineer in charge, the tunnel company shall furnish such assistance and appliances as said engineer in charge shall require in supervising and inspecting the work.

That said tunnel company may, in the prosecution of this work, use a pile platform of the general character described in its application, or, at its option, a floating platform of type to be approved by the said engineer in charge. Whatever the character of platform used, its length, including all floating plant used in connection with it, shall at no time exceed six hundred (600) feet, measured transversely to the axis of the stream, and its width measure parallel to this axis shall not be more than three hundred (300) feet.

That due notification, in writing, shall be given said engineer in charge of the beginning of dredging operations in the navigable waters of the Dominion of Canada, and that thereafter these dredging operations and the subsequent operations of tunnel extension and completion shall be pushed continuously, except when the river is obstructed by ice, and that the rate of not less than two thousand (2,000) cubic yards per day for the dredging, and ten (10) feet per day of completed tunnel, the rate for the tunnel work to be figured from the time of completion of the first section, six hundred (600) feet in length, of the erecting platform, floating or otherwise.

That for the purpose of controlling and safeguarding navigation in the vicinity of the site of the proposed tunnel, said tunnel company shall at its own expense, furnish a fully equipped tug of suitable size and power to be constantly on duty at the site of the work, and so far as the above purpose is concerned, either under the exclusive control and direction of the engineer in charge to be appointed by the Department of Public Works of Canada, or under the joint control of this engineer and the district engineer to be appointed by the government of the United States. Said tunnel company shall also maintain such lights as such engineer in charge shall require for properly marking every obstruction to navigation that may be introduced in connection with the working in progress.

That the engineer in charge appointed by the Department of Public Works of Canada will be given free access to each and every part of the work during its construction, whether such part or portion of the work be in the United States or Canadian waters.

That consent be given to the taking possession by the company of so much of the public beach or lands covered with water or other property indicated on the said plans, as belongs to the Crown, and as may be necessary for the purpose of constructing and completing the said tunnel and for the convenient use of the same.

The committee submit the same for approval.

(Sgd.) JOHN J. McGEE,
Clerk of the Privy Council.

APPENDIX 'B.'

DEPARTMENT OF STATE, WASHINGTON,
July 17, 1906.

The Honourable
The Secretary of War.

SIR,—I have the honour to acknowledge the receipt of your report on the conditions existing at the Sault Ste. Marie, dated May 3, 1906, and signed by the American and Canadian members jointly of the International Waterways Commission organized in accordance with the provisions of section 4 of the River and Harbour Act, approved June 13, 1902, which report under date of May 14 last was endorsed with your approval so far as the War Department is concerned, and referred to the Secretary of State with a request that it be forwarded to the President as a basis for negotiations looking to the adoption of a treaty carrying into effect the recommendations of the commission.

As the proposed negotiations seem likely to involve the consideration of several of the other questions now pending before this commission, a preliminary list of which appears in the report of the American members of the commission, addressed to you on December 1, 1905, and printed as Appendix 'F' of your annual report for the year 1905, it probably would be advantageous to await the reports of the commissioners on these questions, if such reports may be expected, before initiating the negotiations on this question with the British Ambassador, in order that the whole subject may be dealt with comprehensively.

The considerations of these questions would naturally be associated with the proposed Niagara river negotiations, for which provision is made in the Act of Congress, approved on June 29, 1906. It will be observed that this Act fixed a limited period for carrying the negotiations on the Niagara river question to a conclusion. It is hoped, therefore, that any further recommendations from the commission, or the American members of the commission, with respect to these associated questions, which will require for their enforcement joint or concurrent action by the two governments under a treaty agreement, may be submitted by the commissioners as promptly as possible.

Inasmuch as the use of these waters is at present subject to War Department regulations, and apparently some of the recommendations of this report can be carried into effect on the American side of the boundary by executive action under existing laws, without treaty stipulations, it seems desirable that the report should be returned to you, pending the initiation of the proposed negotiations, in order that meanwhile the negotiations referred to may be adopted and enforced without waiting for concurrent action on the Canadian side, if that course seems desirable to you.

I therefore return herewith the original report, retaining a copy of it for the use of this department.

In transmitting this report, I desire to make a matter of record in connection with it, the fact that there is now pending an action brought by the United States against the Chandler-Dunbar Company, one of the power companies located on the American

side of the Sault Ste. Marie, which involves some of the questions dealt with in this report, with respect to which the commissioners have stated their conclusions on the basis of the decision of the lower court in this case, which was against the contentions of the United States. I am advised by the Solicitor General of the United States, to whose attention this has been called, that an appeal is now pending from this decision, and if the United States succeeds on such an appeal and the decision is reversed, the conclusions of the commissioners based on the decision below, will require revision. This, however, I understand, relates only to the title to land under water and to certain lands on the American side of the boundary, and apparently does not diminish the value of the recommendations above referred to.

I have the honour to be, sir,
Your obedient servaint,

(Sgd.) ROBERT BACON,
Acting Secretary.

APPENDIX 'C.'

To the Members of the International Waterways Commission.

GENTLEMEN,—The Reeve and Council of the township of Malden, in the county of Essex, province of Ontario, Canada, respectfully call your attention to the serious damage which the property of riparian owners and the township road, along the Detroit river, have suffered within the last five or six years.

Your petitioners believe that the enlargement and deepening of the waterway or channel made for the purposes of commerce, and the building and operating of larger and faster boats consequent thereto, has been the cause of the damage.

The township has been put to considerable expense in attempting to remedy the evil, and is unable to expend any more or cope properly with the trouble and protect the banks of the river, and the council humbly asks your honourable commission to investigate the matter, with the view of obtaining the necessary assistance from the two governments who have authorized the expenditure for deepening the river and bringing the larger boats nearer to the shore and throwing their swell and wash strongly against the banks.

On behalf of the council of the township of Malden,

(Sgd.) ROBERT ATKEN,
Reeve.

(Sgd.) JAMES HOMER,
Clerk.

APPENDIX 'D.'

To the Honourable W. H. TAFT,
Secretary of War, Washington, D.C.

Whereas there exists on Long Sault Island in the town of Massena, St. Lawrence county, New York, certain conditions favourable to the creation of an attractive summer resort, with navigable approaches thereto and the development of a water-power entirely in that portion of the St. Lawrence river that is within the United States.

Therefore, application is hereby made to the Secretary of War for permission to construct dykes, retaining walls and such other structures as may be necessary, to carry out the above proposition. We refer to a marked chart of a section of the St. Lawrence river accompanying this application and which is part of the same. The dyke will begin at a point about 36 rods westerly from the east end of the above-named island and on the northerly side of same, and at a point in the shallow water about 300 feet out, or northerly from high-water mark on the shore of said island. Running thence easterly along said shore, keeping the wall out from same about the distance of 300 feet, northerly from the projecting points of the said island to a dam to be constructed at or near, but not beyond the point marked for it on the above-mentioned chart.

The wall at the starting point will rise not more than four feet above high-water mark and will extend level at same height to the dam. The above-mentioned dam shall be constructed with a spill-way or provision for overflow in case of high water. It is the opinion of competent engineers who have examined the proposition, that it will not in any way divert water from the channel, but will rather tend to throw more water into the channel and thus will be a benefit to navigation in that rather shallow portion of the St Lawrence river.

Respectfully submitted,

(Sgd.) SMITH L. DAWLEY.

Ogdensburg, N.Y., May 28, 1906.

APPENDIX 'E.'

Buffalo, July 9, 1906.

To the Honourable
The Minister of Public Works,
Ottawa, Canada.

Sir,—The city of Buffalo desires to locate its new intake pier and tunnel in Lake Erie, a portion of which proposed location is in Canadian waters.

I have to-day made application to His Excellency, the Governor General of Canada, through the Honourable, the Secretary of State at Washington, D.C., for permission to locate this tunnel as shown on the accompanying maps. I inclose herewith, for your information, a copy of the application to the Governor General, and would respectfully request that you do what you can to expedite matters, so that the permission required may be obtained with the least possible delay.

Very respectfully yours,

(Sgd.) J. N. ADAM,
Mayor, City of Buffalo, N.Y.

APPENDIX 'F.'

City of Buffalo, Mayor's Office,
July 9, 1906.

To His Excellency,
The Governor General of Canada.
Through the Honourable, the Secretary of State,
Washington, D.C.

Sir,—The city of Buffalo is situated at the foot of Lake Erie and along the upper waters of the Niagara river, as shown on the accompanying maps.

It at present takes its water supply from an intake pier in the swift waters of the Niagara river, as shown on the map. This is objectionable, as the water is often more or less polluted, and the intake pier is an obstruction to the free navigation of the river.

For many years the city has been studying the best method of improving its water supply, and by the advice of eminent sanitary and hydraulic engineers, has adopted a scheme of improvement which consists in building a new pumping station near the foot of Porter avenue, and intake pier in Lake Erie, and a tunnel leading therefrom to the new and old pumping station.

In order to get the best water obtainable, it is desired to locate the intake pier where it will receive the water from the middle of the lake as it flows to the Niagara river, and unpolluted from either shore. The proposed location is shown in red on the accompanying published chart of Buffalo harbour and on a larger scale on the accompanying blue print. While on the published chart the boundary line between Canada and the United States is not shown, it is understood to lie in the south and east of the proposed pier location, thus leaving the pier and a portion of the tunnel in Canadian territory.

The city of Buffalo desires and asks permission from Canada to locate, build and maintain its intake pier and connecting tunnel in the location shown.

It is desired to state that the pier location is on the edge of the reef on which is located the Horse Shoe reef lighthouse, which was built and is maintained by the United States under arrangements made between the two countries. Attention is invited to the fact that the location is out of the ordinary tracks of vessels, which are shown on the published chart, and can be no obstruction to navigation.

The matter has been investigated by the United States engineer at this point, a copy of whose report to the effect that the pier would be no obstruction to navigation is inclosed.

Acting on the information thus obtained, the government of the United States, through the President and Congress, has passed an Act authorizing the city of Buffalo to build the pier and tunnel as proposed. A copy of this law is herewith inclosed.

The proposed intake pier is to be 110 feet in diameter, built of steel and concrete, and with a small wooden, stone-filled landing crib adjacent to it. The crib will be lighted at all times. The tunnel will be about 65 feet below mean lake level, so that it cannot interfere with navigation in the least.

In order that the work may proceed with the utmost rapidity, the city of Buffalo respectfully requests as early action as practicable on this, its formal request to Canada.

Very respectfully yours,

(Sgd.) J. N. ADAM,
Mayor, City of Buffalo, N.Y.

APPENDIX 'G.'

COPY of Report of Col. H. M. Adams, Corps of Engineers, on application of the city of Buffalo, New York, to construct a tunnel and inlet pier in Lake Erie.

U. S. ENGINEER'S OFFICE,
BUFFALO, N.Y., June 1, 1906.

Respectfully returned to the Chief of Engineers, U.S. Army.

An Act of Congress approved March 2, 1905, provides:

'That it shall be lawful for the city of Buffalo, in the state of New York, to construct and maintain a tunnel under Lake Erie, Niagara river, Black Rock harbour and the United States lands known as Fort Porter, extending from a point 200 yards

more or less northeast of the Horse Shoe Reef light, in the Emerald channel, ten thousand feet to the present pumping station of the city of Buffalo, and to erect and maintain an inlet pier therefrom, said inlet pier to be located in the Emerald channel, not more than six hundred feet northeast of the present Horse Shoe Reef light: Provided, that the top of the said tunnel shall be located at least forty feet below mean lake level, and that the city of Buffalo shall maintain a light from sunset to sunrise on the inlet pier, at its own expense.

'The present application is for permission to construct a tunnel and inlet pier as authorized by the above Act, except that the inlet pier now proposed will be about one thousand feet southeasterly from Horse Shoe Reef light instead of "not more than six hundred feet northeast" of it. It is not believed that this change in location will injuriously affect navigation.

'The proposed inlet pier, and about one thousand seven hundred and fifty feet of the proposed tunnel will be in Canadian waters, as shown by maps of the Treaty of Ghent, establishing the international boundary line.

'The Horse Shoe Reef light is also on the Canadian side of the boundary, and on December 9, 1850, at a conference held at the British Foreign Office between Viscount Palmerson and Abbott Lawrence, Esq., the American Minister, it was agreed that England should cede to the United States "such portion of the Horse Shoe Reef as may be found requisite for the intended light-house, provided the government of the United States will engage to erect such light-house and to maintain a light thereon; and provided no fortification be erected on said reef."

A sketch map showing the locality and the boundary line is herewith inclosed.

H. M. ADAMS,
Colonel, Corps of Engineers.

APPENDIX 'H.'

DEPARTMENT OF PUBLIC WORKS,
BUFFALO, N.Y., May 24, 1906.

Hon. WILLIAM H. TAFT,
Secretary of War, Washington, D.C.

DEAR SIR,—The city of Buffalo, in the effort to improve its water supply, is desirous of having a new intake pier in Lake Erie, and a tunnel connecting it with a pumping station in the city.

The intake pier, it is proposed, shall be located at about the point indicated on the accompanying map and which point may be described as follows:

About 300 feet south of a line adjoining the main Breakwater light and the Horse Shoe Reef light, and about 1,000 feet from the latter light. The pumping station on shore would be near the foot of Porter Avenue, as shown on the accompanying map, and the tunnel would be practically on a straight line connecting the intake and pumping station, and with its top at least 30 feet below the bottom of the river, lake or improved channels, or practically 53 feet below mean lake level.

The intake pier would be circular in form and about 110 feet in diameter, with a small crib landing pier on its eastern side.

Your permission to build the proposed intake pier and tunnel is respectfully requested.

In asking your permission, it is respectfully represented to you that the location of the proposed intake is well away from any channel ordinarily travelled by lake or river boats, and will not be an obstruction to navigation. Attention is also invited

to the fact that the proposed location is in the vicinity of the international boundary line between the United States and Canada. This line has never been marked on the ground, and it is impracticable to say whether the intake pier as proposed would be on the American or Canadian side of the line until the line is finally determined and marked through international action. As this determination and marking would undoubtedly take a long time, and as the need of the work of improving the water supply is urgent, it is respectfully requested that, in addition to granting your permission for the intake pier, you take the requisite and proper steps to secure the permission of Canada for the construction of the intake in advance of the final location and marking of the line.

The pier as proposed can work no possible harm to any navigation interests.

With your permission, it is desired that you insert any conditions which the city should fulfil in building and maintaining the pier and tunnel.

Respectfully yours,

(Sgd.) F. G. WARD,
Commissioner.

NOTE.—This letter confirms the plans filed by His Honour, the Mayor, with the Chief of Engineers on or about February 1, 1906.

APPENDIX 'I.'

EXTRACT from a Report of the Committee of the Privy Council approved by the Governor General on July 20, 1906.

On a memorandum, dated July 13, 1906, from the Minister of Public Works, submitting that by Act of Congress, dated June 28, 1906, the city of Buffalo, New York, is authorized to construct and maintain a tunnel under Lake Erie, Niagara river, Black Rock harbour, and the United States lands known as Fort Porter, extending from a point one thousand feet more or less, south-easterly of the Horse Shoe Reef light eleven thousand feet to the present pumping station of the city of Buffalo, and to erect and maintain an inlet pier therefrom, said inlet pier to be located not more than one thousand one hundred feet south-easterly of the present Horse Shoe Reef light, the top of the said tunnel to be located at least forty feet below mean lake level, the proposed works being for the purpose of supplying the city of Buffalo with pure water.

That, however, attention is drawn to the fact that the proposed location of these works is in the vicinity of the international boundary line between the United States and Canada. This line has never been marked on the ground and it is impracticable to say whether the intake pier as proposed would be on the United States or Canadian side until the line is finally determined and marked through international action. Application is therefore made to the Canadian government for permission to construct the said works.

The Minister states that the International Waterways Commission have examined into the matter. They state that the proposed tunnel and inlet pier can be built without injury to navigation, and they report favourable to the granting of the permission applied for.

The Minister, therefore, recommends that permission be given to the city of Buffalo to build the works above mentioned in Lake Erie, the location of which is shown on the plan hereto annexed, the said permission, however, to be revocable and subject to the following conditions : The top of the proposed tunnel shall be located at least forty feet below mean lake level, and the city of Buffalo shall maintain at its own expense a light on the said pier from sunset to sunrise.

The committee submit the same for approval.

(Sgd.) JOHN J. McGEE,
Clerk of the Privy Council.

APPENDIX 'J.'

MEMORANDUM.

Application of Chas. W. Smith—Regulating Richelieu river.

For navigation and power purposes a continuous flow of not less than 9,000 cubic feet per second is desired in the Richelieu river. The average annual flow is greater than this, being 12,000 cubic feet per second. The low water discharge is 3,000 cubic feet per second and there are periods sometimes extending over six or eight months when the discharge is continuously less than 9,000. It is proposed to store up in Lake Champlain during the high water season enough of the surplus water to supply the deficiency during the low water season. For this purpose regulating works are to be constructed in the Richelieu river, by which the level of Lake Champlain will be maintained at a minimum of 97 feet above tide at New York, and it is stated that these works will not under any circumstances raise the high water level of Lake Champlain above 'the present high-water mark,' given as 101·5. Thus it is proposed to give the lake a range of 4·5 feet.

On page 324 of the 'Report of the Board of Engineers upon Deep Waterways between the Great Lakes and the Atlantic Tide Waters,' is a tabular statement of the monthly mean discharge of Lake Champlain for the years 1875 to 1898, inclusive. An examination of this table shows that the period which gave the lowest discharge, extended from September, 1882, to March, 1883; that which gave the next lowest extended from September, 1876, to March, 1877; that which gave the third lowest extended from September, 1883, to February, 1884; and that which gave the fourth lowest from August, 1894, to March, 1895. During these periods the amount flowing was less than 9,000 cubic feet per second, and in order to maintain that flow, it would have been necessary to draw from water previously stored for the purpose, the difference between 9,000 cubic feet and the amount which actually flowed.

The deficiencies for the first period were for

							Cubic feet.
September,	1882,	1,400	c. f. per second,	30	days....		3,628,800,000
October	"	1,800	"	"	31	"	4,821,120,000
November	"	3,500	"	"	30	"	9,072,000,000
December	"	4,600	"	"	31	"	12,320,640,000
January	1883,	5,000	"	"	31	"	13,392,000,000
February	"	4,000	"	"	28	"	9,676,800,000
March	"	2,200	"	"	31	"	5,892,480,000
							58,803,840,000

The deficiencies for the second period were for

							Cubic feet.
September,	1876,	2,400	c. f. per second,	30	days....		6,220,800,000
October	"	3,000	"	"	31	"	6,033,200,000
November	"	3,300	"	"	30	"	5,553,600,000
December	"	4,000	"	"	31	"	10,713,600,000
January,	1877,	4,100	"	"	31	"	10,981,440,000
February	"	3,800	"	"	28	"	9,192,960,000
March	"	700	"	"	31	"	1,874,880,000
							55,572,480,000

The deficiencies for the third period were for

						Cubic feet.
September,	1883,	2,700	c. f. per second,	30	days....	6,998,400,000
October	"	4,300	" "	31	"	11,517,120,000
November	"	4,300	" "	30	"	11,145,600,000
December	"	4,100	" "	31	"	10,981,440,000
January,	1884,	3,700	" "	31	"	9,910,080,000
February	"	300	" "	28	"	725,760,000
						51,278,400,000

The deficiencies for the fourth period were for

						Cubic feet.
August,	1894,	2,100	c. f. per second,	31	days....	5,624,640,000
September	"	3,700	" "	30	"	9,590,400,000
October	"	3,800	" "	31	"	10,177,920,000
November	"	2,100	" "	30	"	5,443,200,000
December	"	1,900	" "	31	"	5,088,960,000
January,	1895,	1,200	" "	31	"	3,214,080,000
February	"	1,600	" "	28	"	3,670,720,000
March	"	1,400	" "	31	"	3,749,760,000
						46,759,680,000

The area of Lake Champlain is 436·7 square miles, or 12,174,497,280 square feet. The depth required to store the deficiency during the first of the above periods is 4·81 feet; that for the second period is 4·56 feet; for the third period it is 4·21 feet, and for the fourth period it is 3·84 feet. Adding 1·25 feet for evaporation in eight months, those depths become 6·6, 5·81, 5·46 and 5·9 respectively. The range proposed, 4·5 feet, will, therefore, not be sufficient to provide 9,000 cubic feet per second throughout the low water season in very dry years.

A range much greater cannot be admitted without inflicting damage either upon the riparian owners or to navigation interests of Lake Champlain. In determining what is proper high water and what proper low water stage in this connection, it is not fair to take the extremes which the lake may have reached at long intervals in its history. A high water stage reached once in twenty years, for example, might inflict damage to property without destroying it, while if reached every year it might cause complete destruction, likewise the obstruction to naviation, caused by extreme low water stage, would be greatly multiplied, if repeated every year.

The table on page 323 of the report on Deep Waterways quoted above (gives the monthly mean stages of Lake Champlain from 1875 to 1898. The highest stage there recorded is 100:13 for the month of April, 1896. Upon only two other occasions did the stage reach 100. To raise the level above 100 regularly every year would be to inflict an injury upon riparian proprietors.

The mean elevation of the lake for the entire period was 96·10. The lowest stage reached was 93·65. During seven years it did not fall below 95. To allow the lake to be drained below 95 every year would be to inflict injury upon the navigation interests.

The limits between which the lake should be regulated are, therefore, 100 as a maximum and 95 as a minimum, notwithstanding that the reserve of water will not, in very dry years, be sufficient to supply 9,000 cubic feet per second.

APPENDIX 'K.'

SPECIAL instructions to fishery officers, ex-officio magistrates in command of government steamers and vessels, engaged as Fisheries' police vessels in protecting the inshore fisheries of Canada.

OTTAWA, March 16, 1886.

SIR,—In the performance of the special and important service to which you have been appointed, you will be guided by the following confidential instructions:

For convenience of reference, these have been divided under the different headings of powers, jurisdiction, duties and general directions.

POWER.

The power with which you are invested is derived from, and to be exercised in accordance with the following statutes, among others, 'The Fisheries Act,' (31 Vic., cap. 60, of Canada), 'An Act respecting fishing by foreign vessels' (31 Vic., cap. 61, of Canada).

And the subsequent statute entitled, 'An Act to amend the Act respecting fishing by foreign vessels,' made and passed the 12th May, 1870 (33 Vic., cap. 15, of Canada; also an 'Act to further amend the said Act' (34 Vic., cap. 23, of Canada).

'Chapter 94 of the Revised Statutes (third series) of Nova Scotia' (of the Coast and Deep Sea Fisheries), amended by the Act entitled, 'An Act to amend Chapter 94, of the Revised Statutes of Nova Scotia' (29 Vic., cap. 35).

An Act passed by the Legislature of the Province of New Brunswick, entitled, 'An Act relating to the coast fisheries and for the prevention of illicit trade' (16 Vic., cap. 69).

Also an Act passed by the Legislature of Prince Edward Island (6 Vic., cap. 14) entitled, 'An Act relating to the fisheries and for the prevention of illicit trade in Prince Edward Island and the coasts and harbours thereof.'

Also from such regulations as have been passed or may be passed by the Governor General in Council, or from instructions from the Department of Fisheries, under 'The Fisheries Act,' hereinbefore recited.

As fishery officer you have full authority to compel the observance of the requirements of the Fisheries Acts and Regulations by foreign vessels and fishermen, in those parts of the coasts of Canada to which, by the convention of 1818, they are admitted to privileges of taking or drying and curing fish concurrent with those enjoyed by British fishing vessels and fishermen.

You will receive instructions from the Customs Department authorizing you to act as an officer of the Customs, and in that capacity you are to see that the revenue laws and regulations are duly observed.

JURISDICTION.

Your jurisdiction, with respect to any action you may take against foreign fishing vessels and citizens engaged in fishing is to be exercised only within the limits of 'three marine miles' of any of 'the coasts, bays, creeks or harbours' of Canada.

With regard to the Magdalen islands, although the liberty to land and dry and cure fish there is not expressly given by the terms of the convention to United States fishermen, it is not at present intended to exclude them from these islands.

DUTIES.

It will be your duty to protect the inshore fisheries of Canada in accordance with the conditions laid down by the convention of October 20, 1818, the first article of which provides:

'Whereas differences have arisen respecting the liberty claimed by the United States, for the inhabitants thereof, to take, dry and cure fish, on certain coasts, bays, harbours and creeks of His Britannic Majesty's dominions in America, it is agreed between the high contracting parties that the inhabitants of the said United States shall have, forever, in common with the subjects of His Britannic Majesty, the liberty to take fish of every kind, on that part of the southern coast of Newfoundland which extends from Cape Ray to the Rameau islands, on the western and northern coasts of Newfoundland, from the said Cape Ray to the Quirpon islands, on the shores of the Magdalen islands, and also on the coasts, bays, harbours, and creeks from Mount Joly, on the southern coast of Labrador, to and through the Straits of Belle Isle, and thence northwardly indefinitely along the coast, without prejudice, however, to any of the exclusive rights of the Hudson's Bay Company; and that the American fishermen shall also have liberty, forever, to dry and cure fish in any of the unsettled bays, harbours and creeks, of the southern part of the coast of Newfoundland, hereabove described, and of the coast of Labrador; but as soon as the same, or any portion thereof, shall be settled, it shall not be lawful for the said fishermen to dry or cure fish at such portion so settled, without previous agreement for such purpose with the inhabitants, proprietors, or possessors of the ground.

'And the United States hereby renounces forever any liberty heretofore enjoyed or claimed by the inhabitants thereof, to take, dry or cure fish on or within three marine miles of any of the coasts, bays, creeks or harbours of His Britannic Majesty's dominions in America, not included within the above mentioned limits; provided, however, that the American fishermen shall be permitted to enter such bays, or harbours, for the purpose of shelter and repairing of damage therein, of purchasing wood and of obtaining water, and for no other purpose whatever. But they shall be under such restrictions as may be necessary to prevent their taking or curing fish therein, or in any other manner whatever abusing the privileges hereby reserved to them.

By this you will observe, United States fishermen are secured the liberty of taking fish on the southern coasts of Labrador, and around Magdalen islands and of drying and curing fish along certain of the southern shores of Labrador, where the coast is unsettled, or if settled, after previous agreement with the settlers or owners of the ground.

In all other parts the exclusion of foreign vessels and boats is absolute, so far as fishing is concerned, and is to be enforced within the limits laid down by the convention of 1818, they being allowed to enter bays and harbours for four purposes only, viz.: for shelter, the repairing of damage, the purchasing of wood, and to obtain water.

You are to compel, if necessary, the maintenance of peace and good order by foreign fishermen pursuing their calling and enjoying concurrent privileges of fishing or curing fish with British fishermen, in those parts to which they are admitted by the treaty of 1818.

You are to see that they obey the laws of the country; that they do not molest British fishermen in the pursuit of their calling, and that they observe the regulations of the fishery laws in every respect.

You are to prevent foreign fishing boats and vessels which enter bays and harbours for the four legal purposes above mentioned, from taking advantages thereof, to take, dry or cure fish therein, to purchase bait, ice or supplies, or to tranship cargoes, or from transacting any business in connection with their fishing operations.

It is not desired that you should put a narrow construction on the term 'unsettled.' Places containing a few isolated houses might not, in some instances, be susceptible of being considered as 'settled' within the meaning and purpose of the Convention. Something would, however, depend upon the facts of the situation and circumstances of the settlement. Private and proprietary rights form an element in

the consideration of this point. The generally conciliatory spirit in which it is desirable that you should carry out these instructions, and the wish of Her Majesty's Government that the right of exclusion should not be strained, must influence you in making as fair and liberal an application of the term as shall consist with the just claims of all parties.

Should interference with the pursuits of British fishermen or the property of Canadians appear to be inseparable from the exercise of such indulgence, you will withhold it, and insist upon entire exclusion.

United States fishermen should be made aware that, in addition to being obliged, in common with the subjects of Her Majesty, with whom they exercise concurrent privileges of fishing in Colonial waters, to obey the laws of the country, and particularly such Acts and Regulations as exist to ensure the peaceable and profitable enjoyment of the fisheries by all persons entitled thereto, they are peculiarly bound to preserve peace and order in the quasi settled places to which, by the liberal disposition of Canadian authorities, they may be admitted.

Wheresoever foreigners may fish in Canadian waters, you will compel them to observe the Fishery Laws. Particular attention should be directed to the injury, which results from cleaning fish on board their vessels, while afloat, and the throwing overboard of offals, thus fouling the fishing, feeding and breeding grounds. 'The Fisheries Act' (Section 14) provides a heavy penalty for this offence.

Take occasion to inquire into and report upon any modes of fishing, or any practices adopted by foreign fishermen, which appear to be injurious to the fisheries.

GENERAL DIRECTIONS.

You will accost every foreign fishing vessel, within the limits described,' and if that vessel should be either fishing, preparing to fish, or should obviously have been fishing within the prohibited limits, you will, by virtue of the authority conferred upon you by your commission, and under the provision of the Acts above recited, seize at once (resort to force in doing so being only justifiable after every effort has failed), any vessel detected in violating the laws, and send her, or take her, into port for condemnation.

Copies of the Acts of Parliament subjecting to seizure and forfeiture any foreign ship, vessel or boat which should be either fishing, preparing to fish or should obviously have been fishing within the prohibited limits, and providing for carrying out the seizure and forfeiture are furnished herewith for your information and distribution.

Should you have the occasion to compel any foreign fishing vessel or fishermen to conform to the requirements of the 'Fisheries Act and Regulations,' as regards the modes and incidents of fishing, at those places to which they are admitted under the Convention of 1818, particularly in relation to ballast, fish offals, setting of nets, hauling of seines, and use of 'trawls' or 'bultows' more especially at and around the Magdalen Islands, your power and authority, under such cases, will be similar to that of any other fishery officer appointed to enforce the Fishery Laws in Canadian waters (Vide Fisheries Act).

If a foreign ship, vessel or boat be found violating the convention or resisting consequent seizure and momentarily effects her escape from the vicinity of her capture or elsewhere, she remains always liable to seizure and detention, if met by yourself in Canadian waters, and in British waters everywhere, if brought to account by Her Majesty's cruisers. But great care must be taken to make certain of the identity of any offending vessel to be so dealt with.

All vessels seized, must be placed, as soon as possible, in the custody of the nearest custom collector, and information, with a statement of the facts and the deposition of your sailing master, clerk, lieutenant, or mate, and of two at least of the most reliable of your crew, be dispatched, with all possible diligence to the government. Be careful

to describe the exact locality where the violation of the law took place, and the ship, vessel or boat was seized. Also corroborate the bearings taken, by soundings, and by buoying the place (if possible), with a view to actual measurement, and make such incidental reference to conspicuous points and land marks as shall place beyond doubt the illegal position of the seized ship, vessel or boat.

Omit no precaution to establish, on the spot that the trespass was or is being committed, within three miles of land.

As it is possible that foreign fishing craft may be driven into Canadian waters by violent or contrary winds, by strong tides, through misadventure, or some other cause independent of the will of the master and crew, you will consider these circumstances, and satisfy yourself with regard thereto before taking extreme step of seizing or detaining any vessel.

On capture, it will be desirable to take part of the foreign crew aboard the vessel under your command, and place some of your own crew, as a measure of precaution, on board the seized vessel; first lowering the foreign flag borne at the time of capture. If your ordinary complement of men does not admit of this being done, or if, because of several seizures, the number of your hands might be too much reduced, you will, in such emergency, endeavour to engage a few trustworthy men. The portion of the foreign crew taken on board the government vessel you will land at the nearest place where a consul of the United States is situated, or where the readiest conveyance to any American consulate in Canada may be reached, and leave them there.

When any of Her Majesty's vessels about the fishing stations or in port are met with, you should, if circumstances permit, go on board and confer with the naval commander, and receive any suggestions he may feel disposed to give, which do not conflict with these instructions, and afford him any information you may possess about the movements of foreign craft; also inform him what vessels you have accosted and where.

Do not fail to make a full entry of all circumstances connected with foreign fishing vessels, noting their names, tonnage, ownership, crew, port, place of fishing, cargo, voyage, and destination, and (if ascertainable), their catch. Report your proceedings as often as possible, and keep the department fully advised on every opportunity, where instructions would most probably reach you at stated intervals.

Direction as to the stations and limits on which you are to cruise, and any further instructions that may be deemed necessary, will from time to time, be conveyed to you.

Considerable inconvenience is caused by Canadian fishing vessels neglecting to show their colours. You will draw the attention of masters to this fact, and request them to hoist their colours without requiring to be hailed and boarded.

It cannot be too strongly urged upon you, nor can you too earnestly impress upon the officers and crew under your command, that the service in which you and they are engaged should be performed with forbearance and discrimination.

The government relies on your prudence, discretion and firmness in the performance of the special duties entrusted to you.

I am, sir, your obedient servant,

(Signed) GEORGE E. FOSTER,
Minister of Marine and Fisheries.

DEPARTMENT OF MARINE AND FISHERIES,
OTTAWA, October 27, 1894.

SIR,—You are hereby instructed to proceed, without delay, to Amherstburg, and take up your station at the western end of Lake Erie. It is reported to the department that United States fishing tugs from Erie, Cleveland, Sandusky and Toledo, are in the habit of following the whitefish and herring, which at this season, are moving to their spawning grounds among the islands at the western end of the lake and in Detroit river.

Among the islands there can be no doubt about the exact position of the boundary line, so that you can then have no difficulty in deciding whether fishing is carried on by foreign vessels or boats in Canadian waters.

In the event of seizure being made, you will establish exactly the position of the seizure by cross bearings, if necessary you should also buoy the position of the seizure, so that you can accurately fix the position, after having made the seizure, by direct measurements, from the shore. You will note and report to the department the extent to which fishing is caried on during the fall season and the spawning grounds in the United States waters at the head of Lake Erie.

I am, sir, your obedient servant,

(Signed) JOHN HARDIE,
For Deputy Minister of Marine and Fisheries.

Captain E. DUNN,
Petrel,
Care of T. H. ELLIOTT,
Sault Ste. Marie, Ont.

DEPARTMENT OF MARINE AND FISHERIES,
OTTAWA, March 27, 1894.

SIR,—I have to instruct you to commission the *Petrel* on the 15th of April or immediately navigation opens. You are to cruise round Pelee and the Canadian island for the purpose of seizing American gill nets if set. Grapnels are to be used, if necessary, and they are to be constructed as follows : A piece of iron 3 feet long, ¾ of an inch thick, with a hole punched 4 inches from point and a line attached. You are always to harbour, if possible, in a Canadian port. After remaining around the island until about the 1st of May, then proceed to Point Pelee, and keep a sharp look-out for our own fishermen fishing gill nets without a license, from thence to Rondeau bay, when the open waters of the bay should be searched for gill nets, returning to Pelee island about the 15th of May, remaining in this vicinity till the beginning of June ; this is considered a very important season, as a good many American vessels come over to catch bass during the close season.

The *Petrel* should then return to Lake Huron until about the 20th June, remaining there as long as necessary, and come back to Lake Erie and cruise in front of Point Pelee, Port Stanley, Bruce and Port Burwell, where American nets are reported to fish gill nets at this time of the year in deep waters from 6 to 12 miles from the Canadian shore. She should cruise round these points till the middle of July, then proceed to Georgian Bay, to look after the salmon trout and whitefish fisheries. At the beginning of September you will have to return to look after bass fishing in the neighbourhood of the Canadian islands off and on until the end of the season. You will then have to take particular care with regard to encroachments by foreign fishermen, and also with regard to fishing during close season for whitefish.

Outside these instructions you will use your own discretion as to the best means of protecting the fisheries.

The commander of the Fisheries Protection Service has ben requested to send you a supply of rifles and cutlasses. You will purchase the ammunition at the best and cheapest place. Commander Spain has also been told to send you the general instructions as regards drill, discipline, &c., which are carried on board the other vessels of the fleet under his command. The *Petrel* will be inspected at irregular intervals by the commander of the Protection Service.

I am, sir, your obedient servant,

(Signed) JOHN HARDIE,
For Deputy Minister of Marine and Fisheries.

Captain DUNN,
Owen Sound, Ont.

DEPARTMENT OF MARINE AND FISHERIES,
OTTAWA, October 26, 1893.

SIR,—Adverting to the general instructions given you on the 8th ultimo, I am to direct you to prevent poaching by United States tugs and boats in Canadian waters, a practice which this department has reason to believe is extensively carried on in Lake Huron, especially between Point Edward and Point Clarke, and in the neighbourhood of Detroit. All nets which you may find set on the Canadian side of the boundary, belonging to foreigners, should be seized and confiscated, and the fact immediately reported to the department, with full details as to the time and place of seizure, the number and length of nets, &c.

I inclose, for your information and guidance, copy of the statute relative to fishing by foreign vessels.

You will accost every United States vessel or boat which you may notice in Canadian waters, and if either fishing, preparing to fish or having obviously fished within the exclusive limits, you will, in accordance with the above statute, seize at once any such vessel or boat detected in violating the law, and immediately place her under the charge of the nearest Collector of customs for safe keeping ; pending action by this department. Then you are to send, at once, full information of such seizure, with a statement of the fact and the deposition of the captain and one or two of the most reliable and intelligent of the crew. Be careful to describe the exact locality where the unlawful fishing took place, and the vessel or boat seized. Corroborate the bearings taken by soundings and by reference to conspicous points and land marks, as shall place, beyond doubt, the illegal position of the illegal vessel or boat. In fine, you should omit no reasonable endeavour to establish beyond dispute that the illegal fishing was in Canadian waters.

The department relies upon your prudence to carry out the above directions, with firmness and discretion.

Inquire as you go along, about the manner in which each overseer attends to his work, and report at once any one who may be neglectful or inattentive to his duties.

You will undoubtedly, in the course of your cruise, be able to collect valuable information as regards the present state of the fisheries on each side of Lake Huron, the principal breeding grounds of whitefish, salmon trout and herring ; on the places which require the greatest amount of protection, in fact on all matters looking to an improved and more efficient system of protection for these waters. This information should be carefully noted down with facts and data in support, for the purpose of being embodied in a general report which you will make at the end of your cruise.

State when you will be ready to sail on your cruise.

I am, sir, your obedient servant,

(Signed) WM. SMITH,
Deputy Minister of Marine and Fisheries.

Captain E. DUNN,
Owen Sound, Ont.

DEPARTMENT OF MARINE AND FISHERIES,
OTTAWA, September 8, 1893.

SIR,—The Minister having decided to give you another trial as fishery officer in command of the Government Cruiser *Petrel,* I have been directed to prepare the following instructions for your guidance :—

1. Until further orders, you will pay particular attention to the protection of fish and to the enforcement of the fishery laws and regulations in the waters of Lake Huron and Georgian bay. Should it be found advisable at any time to extend the field of your action, you will be accordingly instructed.

2. You are already familiar with the Fishery Laws and Regulations, applicable to the waters under your charge. Within these limits, you will, when necessary, exer-

cise magisterial functions, as provided by section 2, chap. 95, Revised Statutes of Canada.

The various Fishery Officers within these limits (a schedule of which is herewith attached), will be under your immediate directions, as well as to the general and special instructions from this department which may be furnished to you and to them from time to time. You will see that they attend to their work, and report any failure on their part to do so.

3. The duties of your office relate chiefly to the enforcement of the Fishery Laws and Regulations. Copies are herewith, for your information, as well as copies of the latest departmental reports. Particular attention should be given to the following points :—

(*a*) The constant inspection and actual examination into the actual conditions of the fisheries within your district;

(*b*) Their produce and destruction, the men, material, tonnage, etc., engaged in them, the details of the fishing industry as an important branch of the country's commerce;

(*c*) You are to ascertain whether abusive practices prevail, and to suggest remedies and improvements of existing regulations, which may be in your opinion needed ;

(*d*) Mill dams or other obstructions on rivers should be reported upon, with a view to rendering them passable for fish;

(*e*) You are to strictly enforce the Statutes respecting sawdust and mill rubbish whenever you find the law violated or complaints are made to you.

4. An important part of your duty consists of prosecution 'on view,' as provided by section 17 of the statute, or upon the information of the local officers or others, of all offenders against any of the fishery laws or regualtions. It is, therefore, desirable to give you some instructions on this head.

You will be careful to advise officers in your district to engage in no litigation, but to report to you in case of necessity, when you will at once conduct such matters to a conclusion. Convicting persons 'on view' without any form of process is improper. Power to a magistrate to convict on his own view is, in the main, a summary way of dispensing with all other testimony, except that of the convicting justice. It does not do away with the necessity of a summons, either oral or in writing, neither does it preclude defense. Each case must be duly recorded and a regular conviction afterwards formulated, stating that it is 'on view' had of the offence, that a conviction is made. You may cite the offender by oral command, or by summons in writing, after hearing his plea or defence, and after considering any extenuating circumstances if such there be, and such as are admissible in mitigation of the penalty, proceed forthwith, in the presence of the defendant, to impose a fine, etc., with the alternative of imprisonment. In such cases no complaint is necessary. No part of the penalty accrues to the convicting officer, the whole belongs to the Crown.

The penalty provided by section 18 of the Fisheries Act for each offence varies from $1 to $20, in the discretion of the convicting officer or magistrate. The department favours the imposition of the highest penalty, because, as a rule, small fines do very little good.

All materials, implements or appliances used in contravention of the Fisheries Act, or the regualtions made under it, are liable to confiscation in addition to the penalty imposed.

5. The mode of rendering your monthly accounts is fully explained in the circular herewith, and the blank forms supplied for your use. In connection with this matter, the Minister desires to impress upon you the necessity of being as economical as possible in your expenses, always keeping the efficiency of the service in view. You will keep a full and complete diary of every day's work, in which you will note down not only the name and address of every one to whom you pay money, but the purpose for which such money was expended; the reasons for every journey; the results of each visit, &c.

6. As early as possible after the 1st of December, you will furnish this department with a full and detailed report of your operations and the state of the fisheries within the district under your charge. You will append to this report full returns of the yield of the fisheries of the whole division, for which purpose blank forms will be sent you.

7. The principal part of your division where illegal fishing is known to be most prevalent, is on the north-eastern coast of Georgian Bay, between Moon River and Byng Inlet. This part of the coast is under charge of Overseer Jackson, of Midland Harbour. On your first visit to that part of the coast, you will take him with you, his intimate knowledge of the localities and of the fisheries will be of great advantage to you.

8. A good deal of illegal fishing is also carried on near the mouth of French river, around the Bustard islands ; at Badgley island, near Wikivemikong, and at Little Current. These places are under charge of Overseer Elliott, of Sault Ste. Marie, with whom you will arrange to accompany you when you visit these localities.

9. The department has also reason to believe that a good deal of illegal fishing takes place every fall at the Fishing islands, Lake Huron, as well as at other places in that neighbourhood, along the coast of the county of Bruce.

In this connection you will see that no seine hauling is done at Sauble beach.

10. Instruct the several officers on Georgian bay to keep a sharp lookout for freezers and shipping of fish during the close season. The department has reason to believe that a great many evasions and violations of the law occur through neglect of fishery officers on this head; especially at Collingwood, where Overseer Donaldson is located. You will direct him to maintain a strict watch over the Nottawasaga river and see that no illegal fishing is carried on there.

11. You are personally acquainted, it is presumed, with Overseer Elliott, and the extent of his work. It is, therefore, unnecessary to give you any special directions on this head. It will be well, however, to remind you to keep in constant communication with him, so as to advise him of any illegal fishing which may take place in the most distant parts of his division, that is to say, Spanish and French rivers, and around the south and southeastern shores of Manitoulin island. In the latter connection, you will keep an eye on Mutchmore's mill, at Providence Bay, and see that the law relative to sawdust is strictly carried out.

12. The close season for whitefish and salmon trout will as usual be from 1st to 30th November, both days inclusive. All the licenses issued this year for fishing in the waters of Lake Huron and Georgian bay expire on October 31. All gill-nets or pound nets which you may find in the water after October 31 should be destroyed, the fish confiscated and sold and the parties prosecuted.

13. Keep the department regularly and fully advised of your movements. Telegraph only on matters of importance. Mail facilities are sufficiently prompt for the general requirements of the service.

14. When you require advice, communicate with the department, giving a full statement of facts involved.

Let every matter in your correspondence form the subject of a separate letter. This obviates confusion and assures prompt attention.

All your official communications should be addressed to the Deputy Minister of Marine and Fisheries.

A supply of stationery is herewith for official use.

I am, sir, your obedient servant,

(Sgd.) JOHN HARDIE,
For Deputy Minister of Marine and Fisheries.

Captain E. Dunn,
Owen Sound.

SESSIONAL PAPER No. 19

DEPARTMENT OF MARINE AND FISHERIES,
OTTAWA, September 10, 1890.

SIR,—I have the honour to inform you of your appointment by His Excellency the Governor General in Council, to the command of the government steam yacht, *Cruiser,* and as a fishery officer for the Great Lakes and Georgian bay, with magisterial jurisdiction under the Fisheries Act on these waters and vicinity.

The forms of oath of office, which are herewith, you will be good enough to attest to, before a justice of the peace, and return them to the Fisheries Department at your earliest convenience. I also inclose for your information and guidance, copies of the Fisheries Act and Regulations (the latter having equal power with the Act itself). It is desirable that you should, without delay, make yourself conversant with this Act and the regulations made.

You have already been directed by telegraph to take command of the *Cruiser* at Owen Sound, and have her at once fitted for service. The vessel is to be employed for the present season in Lake Huron and the Georgian bay, in the joint protectorate of the customs and the fisheries.

Your instructions and authority as to the former service will be furnished you by the Customs Department, to which department you will report on all matters connected with that branch of the service.

You will proceed with all possible despatch to cruise in the Georgian bay, calling first upon FisheryOverseer Shackleton, at Colpoy's Bay. It is desirable that you should take him on board the *Cruiser* and go over his district with him. From Overseer Shackleton and the other overseers upon whom you may subsequently call, you may obtain much general information as regards the fisheries, especially looking to an evil which the department believes to exist in the unlimited use of gill-nets and the totally inadequate fee of $5 per boat, which is now paid for the privilege of a season's fishing with 6,000 yards of gill nets.

After leaving Overseer Shackleton, you will (unless more important work present itself), visit Overseer George S. Miller, at Owen Sound, and in turn F. G. M. Fraser at Victoria Harbour.

Upon completing an inspection of the districts of these overseers, you had better proceed to Manitowaning, and there take on board Overseer A. Drinkwater. It is desirable that he should accompany you around Fitzwilliam, Club Squaw and other islands south of Manitoulin island. You will then work your way to Sault Ste. Marie, calling upon Captain Joseph Wilson, fishery overseer at the Sault. You will find Captain Wilson an officer of large experience and able to give you much valuable information, both as regards the customs and the fisheries.

If is it can be arranged that Captain Wilson should accompany you over his division, you will find his presence of advantage.

The department has reason to believe that considerable fishing is carried on by United States subjects in the Georgian bay, without having taken out a license. It will therefore be your duty to speak all boats you may see fishing. Ascertain the names of the owners and where the boats belong.

To aid you in detecting illegal fishing, a list of the licenses that have been issued through the several overseers is inclosed herewith.

In carrying out the general instructions hereby conveyed, you are at liberty to exercise your judgment in deviating therefrom for the purpose of examining any matters appertaining to the customs service, which you may deem essential.

You are required to carry out the service committed to your charge with the due regard to economy, and at all times keep in view its efficiency, taking notes in all points relating to the fisheries which you may deem of interest to the department.

The length of nets, the service of the mesh, the number of men employed, the markets in which the fish are disposed of, the due observance of the close season, are all details which may profitably engage your attention. The inclosed pay-list will inform you as to the crew carried by the *Cruiser* last season; this number is not to be

exceeded without the department's authority. You will furnish weekly to this department a copy of the *Cruiser's* log and also fill in the boarding reports with which you have been furnished. The crew will be paid monthly upon a pay-list certified by you and transmitted to the department.

In navigating your vessel, there is no need that any risk should be incurred, and you will always have regard for the responsibility attaching to your command. Whenever in waters with which you are not familiar and the presence of a pilot is necessary, you are authorized to engage one. All accounts for supplies or fuel furnished the *Cruiser* are to be rendered in duplicate and certified by you as correct, both as regards the quantity and price, and transmitted to the department for payment. Such reasonable advances for the steamer's incidental expenses as may be necessary, will from time to time be made to you.

The size of the mesh of nets having been fixed at 4½ inches, you are to take great care that no nets are allowed to be used under this size, and if such are found in use, they are to be seized and destroyed, and you are to prosecute all offenders for any irregularities.

Discretionary power with reference to the offences against the Fisheries Act or Regulations is alone to be exercised by the Minister, after having from you a full report of the case requiring consideration.

The close season for salmon trout and whitefish is from 1st to 30th of November.

I am, sir, your obedient servant,

(Sgd.) JOHN TILTON,
Deputy Minister of Marine and Fisheries.

Captain E. Dunn,
Owen Sound, Ont.

APPENDIX 'L.'

Department of State,
Washington, September 5, 1906.

The Honourable,
The Secretary of War.

Sir,—I have the honour to inclose herewith a copy of a letter from Mr. H. C. Schacht, secretary of the Keystone Fish Company, of Erie, Pa., transmitting a communication from the commander of the Canadian cruiser *Vigilant,* proposing to log and mark by buoys the exact international water boundary line, thereby enabling fishermen to keep on their side of the line.

As it is stated that difference of opinion as to the exact location of the boundary line exists between the interested parties, I should be very much obliged if you should cause this to be referred to the International Waterways Commission, with the enquiry whether it is known that the Amercian and Canadian charts of the locality agree as to the distance to be logged from the gas buoy at Erie to the boundary line on the usual fishing grounds. An examination some years ago showed that the maps of the Ghent Commissioners were not accurately scaled, Lake Erie being drawn wider than it really is, so that the distances logged according to those maps from either shore to the treaty boundary as drawn thereon would lap appreciably at the middle of the lake.

I have the honour to be,
Your obedient servant,
ROBERT BACON,
Acting Secretary.

Enclosure.

SESSIONAL PAPER No. 19

From H. C. Schacht as above, August 25, 1905, with inclosure.

KEYSTONE FISH COMPANY,
ERIE, PA., August 25, 1906.

Honourable Secretary of State,
Washington, D.C.

SIR,—Referring to the attached copy of communications received from Capt. Dunn, of the C. G. S. *Vigilant,* would ask if it could not be arranged to have one of the American cutters operate in conjunction with Captain Dunn to establish the exact location of the boundary line.

There seems to be considerable difference of opinion between our captains and Captain Dunn as to the location of the line, and we would urge that immediate action be taken in this matter. There are from 40 to 50 boats operating out of this port at the present time and a seizure may be made any day.

Awaiting your prompt action, we remain,

Respectfully yours,
KEYSTONE FISH CO.,
H. C. SCHACHT, *Secretary.*

Keystone Fish Company,
Erie, Pa.

SIR,—If the fishermen intended setting their nets in their own waters and in the future intend to do so, I would make this proposition to them:

That they furnish several large conspicuous buoys and send a responsible person with me, I will come over there and log the distance for them from the gas buoy at Erie to the line where they usually fish and they will then be enabled to keep on their side of the line if they desire to do so.

They can communicate with me at Port Stanley.

Very truly yours,
E. DUNN,
Commanding *Vigilant.*

DEPARTMENT OF STATE,
WASHINGTON, September 7, 1906.

The Honourable,
The Secretary of State.

SIR,—I have the honour to inclose herewith copy of a letter from the Keystone Fish Company, relative to the seizure by the Canadian cruiser *Vigilant* of the nets of the American steamer *Erie,* and to refer to this department's recent letter (the 5th instant), on the same subject: namely, agreement as to distance to be logged from a fixed point to the boundary line.

The Keystone Company has been advised that the department has taken steps to find out what the line is and that, in the meantime, their remedy is in the Canadian courts.

I have the honour to be, sir,
Your obedient servant,
ROBERT BACON,
Acting Secretary.

Inclosure,

From Keystone Fish Company, August 21, 1906.

KEYSTONE FISH COMPANY,
Catchers and Shippers of Fresh Fish,
ERIE, PA., August 21, 1906.

Secretary of Treasury,
Department of Customs, Washington, D.C.

SIR,—We wish to call your attention to the high-handed action taken by Captain Dunn, of the Canadian cruiser *Vigilant*.

On August 20 our steamer *Erie* set 112 nets 14½ miles north-northwest of Erie in a southwesterly and northeasterly direction according to hydrographic charts No. 14.477. These nets were set in United States waters. On the 21st the *Erie* was only able to find 16 nets, the balance having been confiscated by the *Vigilant*.

All our captains have positive instructions to keep on this side of the boundary line, and they are as well able to determine the location of the line as Captain Dunn. But neither Captain Dunn nor our captains can determine the location of the line within a few feet.

Could it not be arranged to have an American cutter patrol the line to protect our interests and also definitely determine the location of the line? As it now stands it is left entirely to Captain Dunn.

Our fishing territory is very limited at best, and we demand protection for our property when in United States waters. We are at least entitled to fish up to the line.

If Captain Dunn continues in this manner, our boats will be compelled to stay from one to two miles this side of the line to be safe from confiscation.

Our captains cannot be governed by where the *Vigilant* runs in going up and down the lake, as she varies from three to four miles from day to day.

The nets seized were worth from $550 to $600, which amount, we think, should be recovered from the Canadian authorities.

Your prompt attention to this matter will greatly oblige.

Respectfully,

KEYSTONE FISH CO.,
H. C. SCHACHT.

JOINT REPORT ON THE CHICAGO DRAINAGE CANAL, 1907.

INTERNATIONAL WATERWAYS COMMISSION,
TORONTO, ONT., January 4, 1907.

The Honourable Secretary of War of the United States,
The Honourable Minister of Public Works of Canada:

The International Waterways Commission has the honour to submit the following report upon the Chicago Drainage Canal:

1. The headwaters of the Illinois River, an important tributary of the Missisippi, approach within 10 miles of Lake Michigan near its southerly end, where stands Chicago. The river, called here the Des Plaines, is separated from the lake by a low and narrow divide running nearly north and south. In the divide are two depressions, about 8 miles apart, in which the height is only about 10 feet above the surface of the lake. The area eastward of the divide is drained by two streams, the Chicago and the Calumet rivers, which empty into Lake Michigan.

The city of Chicago was originally built on the Chicago river, and, although it is now spreading into the Calumet region, it was for many years drained exclusively by the Chicago river, and its principal parts are now so drained. This river constitutes the main sewer of Chicago. The lake furnishes the city's water supply. To prevent the pollution of the water supply by sewage has always been the most important problem with which Chicago has had to deal. Its solution has from a very early day been found in diverting a part of the river's flow into the valley of the Des Plaines through the most northerly of the two depressions mentioned above. The Illinois and Michigan Canal, which was opened to navigation in 1848, was at once utilized for this purpose, and all subsequent improvements consisted in efforts to force more sewage through that canal until, in 1889, it was decided to build a new and greatly enlarged channel which should completely divert the Chicago river from Lake Michigan and draw from that lake a body of pure water large enough to make the sewage inoffensive to the communities by whose doors it must pass.

2. Before embarking upon this work the city in 1886 appointed a commission of three engineers 'to consider and report on any and all things which relate to the matter of water supply and drainage of the city of Chicago.' In January, 1887, the commission submitted a report to the mayor and city council of Chicago (copy appended marked A), which it styled a preliminaary report. It intended to submit an additional or final report in which the data upon which its conclusions were based should be given in greater detail, but such additional report was never submitted. After remarking that 'almost every conceivable way of dealing with these questions had been suggested and in some form applied during the past thirty years,' the commission stated that 'among the possible methods of getting rid of the Chicago sewage there are but three that have been deemed worthy of consideration, namely, a discharge into Lake Michigan, a disposal upon land, and a discharge into the main river.' It considered the first method too expensive, involving as it does a wide separation between the outlets of the sewers and the intakes of the water supply. It pronounced the second inapplicable to the metropolitan district as a whole, under the topographical conditions existing, but thought that it might be employed for the extreme northern and southern parts, the latter including the Calumet region. It recommended the third method. It was uncertain as to the quantity of water required to dilute the sewage so as to make it inoffensive, but in order to prepare an estimate of cost it was compelled to assume some approximate size of channel, and it did assume a size large enough to discharge 600,000 cubic feet per minute, that being the estimated amount of water falling upon the area tributaary to the canal during storms and not otherwise disposed of. It includes the drainage basins of the upper Des Plaines and of the Chicago river, but not that of the Calumet river with a channel of less dimensions in times of storms and floods, the Chicago river would not be fully diverted into the Des Plaines, but would back up into Lake Michigan. The result was a supply of 24,-

000 cubic feet per minute for each 100,000 people in a population of 2,500,000, the population which the commission thought it desirable to provide for, and the opinion was expressed that this would equal the maximum requirements.

3. Following this report the Illinois legislature passed an Act approved May 29, 1889, 'to create a sanitary district and to remove obstructions in the Des Plaines and Illinois rivers,' of which the twenty-third and twenty-fourth paragraphs read as follows, viz.:—

'Paragraph 23.—If any channel is constructed under the provisions hereof by means of which any of the waters of Lake Michigan shall be caused to pass into the Des Plaines or Illinois rivers, such channel shall be constructed of sufficient size and capacity to produce and maintain at all times a continuous flow of not less than 300,000 cubic feet of water per minute, and to be of a depth of not less than 14 feet, and a current not exceeding 3 miles per hour, and if any portion of any such channel shall be cut through a territory with a rocky stratum where such rocky stratum is above a grade sufficient to produce a depth of water from Lake Michigan of not less than 18 feet, such portion of said channel shall have double the flowing capacity above provided for, and a width of not less than 160 feet at the bottom capable of producing a depth of not less than 18 feet of water. If the population of the district draining into such channel shall at any time exceed 1,500,000, such channel shall be made and kept of such size and in such condition that it will produce and maintain at all times a continuous flow of not less than 20,000 cubic feet of water per minute for each 100,000 of the population of such district, at a current of not more than 3 miles per hour, and if at any time the general government shall improve the Des Plaines or Illinois rivers, so that the same shall be capable of receiving a flow of 600,000 cubic feet of water per minute, or more, from said channel, and shall provide for the payment of all damages which any extra flow above 300,000 cubic feet of water per minute from such channel may cause to private property so as to save harmless the said district from all liability therefrom, then such sanitary district shall, within one year thereafter, enlarge the entire channel leading into said Des Plaines or Illinois rivers from said district to a sufficient size and capacity to produce and maintain a continuous flow throughout the same of not less than 600,000 cubic feet of water per minute, with a current of not more than 3 miles per hour, and such channel shall be constructed upon such grade as to be capable of producing a depth of water of not less than 18 feet throughout said channel, and shall have a width of not less than 160 feet at the bottom. In case a channel is constructed in the Des Plaines river, as contemplated in this section, it shall be carried down the slope between Lockport and Joliet to the pool commonly known as the upper basin, of sufficient width and depth to carry off the water the channel shall bring down from above. The district constructing a channel to carry water from Lake Michigan of any amount authorized by this Act may correct, modify, and remove obstructions in the Des Plaines and Illinois rivers, wherever it shall be necessary so to do to prevent overflow or damage along said river, and shall remove the dams at Henry and Copperas Creek, in the Illinois river, before any water shall be turned into the said channel. And the canal commissioners, if they shall find at any time that an additional supply of water has been added to either of said rivers by any drainage district or districts, to maintain a depth of not less than 6 feet from any dam owned by the State to and into the first lock of the Illinois and Michigan canal at La Salle, without the aid of any such dam, at low water, then it shall be the duty of said canal commissioners to cause such dam or dams to be removed. This Act shall not be construed to authorize the injury or destruction of existing water-power rights.

'Paragraph 24. When such channel shall be completed, and the water turned therein, to the amount of 300,000 cubic feet of water per minute, the same is hereby declared a navigable stream, and whenever the General Government shall improve the Des Plaines and Illinois rivers for navigation, to connect with this channel, said General Government shall have full control over the same for navigation purposes, but not to interfere with its control for sanitary or drainage purposes.'

By this Act a flow of not less than 20,000 cubic feet per minute is required for each 100,000 inhabitants and provision is made for a population of 3,000,000. The evidence before the legislative committee which framed the Bill as to the quantity required was contradictory. The amount fixed for dilution of the sewage was a minimum. (See Appendix B.)

4. Under this Act the sanitary district of Chicago was organized, embracing all of the city north of Eighty-seventh street and some 43 square miles of Cook county outside of the city limits. The total area of the district was 185 square miles, and did not include the Calumet region nor the north shore. The trustees held their first meeting January 18, 1890. The Chicago Drainage Canal was then constructed, water being turned into it for the first time in January, 1900. It was not then, and has not since, been completed to its full capacity as designed. In places where the excavation was in rock the full dimensions of the prism were taken out, but in earth a considerable volume was left to be removed by the easy method of dredging hereafter. When fully completed it was designed to have a capacity of 600,000 cubic feet per minute, or 10,000 cubic feet per second, flowing at a velocity of 1.25 miles per hour in earth and 1.9 miles per hour in rock.

5. The canal is 28·05 miles in length. For a distance of 7·8 miles from its junction with the Chicago river at Robey street its dimensions are 110 feet width at bottom, side slopes 1 on 2, depth of water 22 feet at low stage of Lake Michigan, with a grade of 1 in 40,000, the material being earth. This section is eventually to have a width of 200 feet at bottom.

6. For a farther distance of 5·3 miles, although the material is principally earth, the dimensions are 202 feet width at bottom, side slopes 1 on 2, minimum depth of water 22 feet, with a grade of 1 in 40,000. This section is completed.

7. For the remaining 15·95 miles the canal is excavated wholly or partially in rock. Where the natural rock does not come to the surface walls of masonry have been built upon the rock surface, thus artificially carrying it to a height 5 feet above datum. The dimensions here are 160 feet width at bottom, 162 feet width at top, minimum depth of water 22 feet, with a grade of 1 in 20,000. This section also is completed.

8. The controlling works are situated near the town of Lockport at the western end of the canal. They consist of a bear trap dam 160 feet wide, with a vertical play of 17 feet, and of seven sluice gates of the Stoney type, each 30 feet wide and having a vertical play of 20 feet. These works provide a very efficient means of controlling the flow of water through the canal.

9. The project of the sanitary district for the disposal of sewage by the canal when completed is briefly as follows: All sewers will discharge into the Chicago river, either directly or through intercepting sewers. From the mouth in Lake Michigan to the point where the North and South branches unite the river will flow 8,000 cubic feet per second, less such quantity as may be pumped into the upper portion of the North branch, which under the original project was 200 cubic feet per second admitted through a conduit at Fullerton avenue. From this point the combined flow will be 8,000 cubic feet to the point where the South Fork enters the South branch, where it will be increased to 10,000 cubic feet by water pumped from Lake Michigan at Thirty-ninth street and flowing through a large conduit in Thirty-ninth street to the South fork. The volume which will finally enter the canal under this project will be 10,000 cubic feet per second.

10. The channel of the Chicago river is not large enough to transmit that volume from the lake to the canal except at velocities which are an obstruction to navigation. The amount which the Secretary of War has thus far permitted the sanitary district to pass through the river is 4,167 cubic feet per second. In order to obtain authority for a larger amount the trustees have undertaken to enlarge the channel of the river and have accomplished a large amount of work in that direction.

11. By act of the Illinois legislature in 1903 the sanitary district was enlarged by annexing thereto the north shore district, containing 78·6 square miles, and the Calumet district, containing 94·48 square miles. The total area of the sanitary district

is therefore now 358·08 square miles. The same legislature authorized the development of the water power created by the diversion.

12. The plans for the north shore region involve two additional conduits from the lake to the North Branch of the Chicago river, one at Lawrence avenue, into which 583 cubic feet per second, and one at Wilmette, into which 1,000 cubic feet per second, are to be pumped. As this water is to form a part of the 10,000 cubic feet originally to be taken out through that river, it does not add to the amount of water to be taken from Lake Michigan.

13. The plans for the Calumet region involve a treatment of the Calumet river similar to that of the Chicago river. The river is to be diverted into the Des Plaines Valley. For this purpose a new channel is to be cut through the southerly depression in the divide, and to join the present drainage canal at Sag, about 11 miles from the controlling works at Lockport. From Sag to Lockport the drainage canal must carry the flow from the Calumet river in addition to that from the Chicago river. It was designed to accommodate the latter river alone, or 10,000 cubic feet per second, but improved methods of excavation, particularly channeling in rock, gave it a greater capacity than was computed; and the hydraulic formulæ with which its dimensions were figured, being adapted to smaller streams, gave results which proved to be too large. It is found that the portion completed in rock, which includes the reach from Sag to Lockport, will carry an amount stated by the Chief Engineer to be 14,000 cubic feet per second. The difference, 4,000 cubic feet per second, is the amount which it is proposed to divert from the Calumet river. For this purpose it is proposed to excavate a channel having in earth a bottom width of 72 feet, with side slopes 3 on 5, and in rock a bottom width of 90 feet with vertical sides, the depth in both cases to be 25 feet.

14. Work in the territory annexed in 1903 has been limited to surveys, and the preparation of plans, and the expenditures in that territory have been small. The amount expended upon the drainage canal and accessory works, including the above, to December 31, 1905, is $40,873,629.71; in addition to which $1,556,226.56 has been expended for the development of water power and $7,290,101.27 has been paid out for interest. For a financial statement more in detail, see Appendix C.

15. Although the primary object of the Chicago Drainage Canal was the discharge of Chicago sewage, its function as a channel for navigation was kept in view from the beginning. All of the bridges over it are draw bridges with ample openings. A provision of this kind, as well as the care exercised to make the sewage inoffensive by liberal dilution, was necessary to conciliate the interests in the valley of the Des Plaines and Illinois rivers, which would otherwise be adversely affected. It can hardly be doubted that the canal will eventually form a part of an improved waterway between the Great Lakes and the Mississippi river, though its full depth will probably not be required for that purpose. Congress has not adopted any scheme for this improvement, but by its direction a survey was made, and plans with estimates for a waterway 14 feet deep were submitted, by a board of engineers in a report dated August 26, 1905. The board found that for a distance of about 100 miles from Chicago the improvement must be with locks and dams, and as the quantity of water required would be merely that needed for the service of locks and other incidentals, the extent of the improvement or depth which could be obtained in that part of the route was without limit so far as it depended upon the amount of water available. For the remaining distance, about 223 miles, the improvement would be an enlargement of the open channel and the degree to which it was practicable was entirely dependent upon the quantity of water flowing. The board assumed that the Chicago Drainage Canal would eventually be permitted to take 10,000 cubic feet per second from Lake Michigan, and it expressed the opinion that with that volume added to the natural low water discharge of the Illinois river a depth of 14 feet in the open channel could be maintained; also that if a much greater depth was to be secured a much larger volume of water must be taken from Lake Michigan.

16. In the neighbourhood of Lockport the natural level of the ground falls away rapidly and excellent facilities are found for the development of water power. Under

the State legislation of 1903 the sanitary district is now engaged in utilizing this incidental advantage of the drainage canal. The plans provide for an extension of the canal 10,700 feet between concrete walls and earth and rock embankments to the site selected for the power house and for the excavation of a tail race 6,800 feet long, 160 feet wide, and 22 feet deep. If the maximum quantity of water which the sanitary district now claims to be necessary for sanitary purposes—14,000 feet per second—be utilized it will be possible to develop about 40,000 electrical horse-power under a head of 34 feet. With 10,000 cubic feet per second about 28,000 horse-power can be developed. A power house is being erected which will accommodate 8 turbines, each capable of generating 5,000 horse-power.

17. The sanitary district has acquired land on both sides of the canal throughout its length, the width of the strips varying from 200 to 800 feet. This land is offered to manufacturers at moderate prices, and it seems probable that they will in the course of time be attracted thereto, particularly after arrangements for furnishing them with cheap power from Lockport are completed.

18. The diversion of large bodies of water from Lake Michigan for supplying the drainage canal has not been authorized by Congress. The plans of the sanitary district, except those for the enlargement of the Chicago river, have not been submitted to any Federal authority for approval. It was only after the opening of the canal that application was made to the Secretary of War for permission to divert the quantity of water required by the State law. The Secretary granted permission for such quantity as would pass through Chicago river without detriment to navigation, a quantity considerably less than that required by the State law. After experimenting with various amounts it was fixed at 250,000 cubic feet per minute, or 4,167 cubic feet per second, and that is the amount now authorized. It is 'subject to such modification as, in the opinion of the Secretary of War, the public interests may from time to time require.' Copies of all the permits granted by the Secretary of War in this connection will be found in Appendix D.

19. In the expenditure of $40,000,000 for the drainage canal the people of Chicago, with its population of 2,000,000, incurred a burden equivalent to that due to an expenditure of $1,600,000,000 by the United States, with its population of 80,000,000—that is, enough to build eight or more Panama canals. It was a very serious effort and has commanded the admiration and sympathy of all observers. The diversion of 10,000 cubic feet per second from Lake Michigan affects other interests adversely, but these interests have withheld their opposition, seeming to believe that some such amount was necessary, and apparently willing to contribute their share to protect the lives and health of the people of a great city. The plans calling for that amount have been under public discussion for some years. Although withholding formal approval, the Federal authorities have taken no steps to prevent their execution. Congress has called for a plan and estimates for an improvement of the waterways connecting with it, the scope of which is fixed by that amount. There appears to be a tacit general agreement that Chicago needs or will need about 10,000 cubic feet of water per second for sanitary purposes and that the city should have it without further question.

20. It was not generally known until after the publication in March last of the report of the American section of this Commission upon Niagara Falls that an amount greater than 10,000 cubic feet per second would be asked for. In that report, subsequently concurred in by the Canadian section, it was recommended that the diversion of 10,000 cubic feet be allowed. The preservation of Niagara Falls alone was considered, and that in the light of the tacit agreement above described. It was supposed at the time that this was all that Chicago needed, but the recommendation gave offence to the officials of the sanitary district, and the further demand then came out in the form of appeals to the committees of Congress and to the Secretary of State. It is necessary now to take up the question anew, and, after considering it in all its bearings, to reach some conclusion as to whether there should be a limit to the amount of water to be diverted at Chicago, and, if so, as to what that limit is.

21. That the abstraction of water from Lake Michigan has a tendency to lower the level of that lake and of all the waters to which it is tributary is self-evident; but the exact effect of abstracting a given amount can be ascertained only from prolonged observation of the natural outlets under the varying conditions to which they are subjected during a series of years. An elaborate investigation of this subject was made under the office of the United States Lake Survey in Detroit, the results of which were published in the annual reports of the Chief of Engineers for 1900, page 5401; for 1902, pages 2779 and 2825; and for 1904, page 4120. Further observations are needed to be made when the difference of level between Lake Erie and Lake Huron is greater or less than when the existing observations were made, but the results obtained from the latter are believed to be reliable within one-tenth of a foot. The amounts by which the mean level, as derived from observations of the last forty-six years, of the various waters will be lowered by a discharge of 10,000 and also by 14,000 cubic feet per second are given in the following table :—

Location.	Water level lowered by diversion at Chicago of—	
	10,000 cubic feet per second.	14,000 cubic feet per second.
	Inch.	Inch.
Lakes Huron and Michigan	0 52	0·70
Lake St. Clair	0·45	0·64
Lake Erie	0·45	0·64
Lake Ontario	0·35	0·49
St. Lawrence River and Rapide Plat	0·40	0·56

From this table it appears that all the waters, including Lakes Michigan and Huron, Lake St. Clair, Lake Erie, Lake Ontario, and the St. Lawrence river, besides the important connecting channels, the Detroit and St. Clair rivers, will be lowered by amounts varying from 4¼ to 6¼ inches for 10,000 cubic feet and from 6 to 8½ inches for 14,000 cubic feet per second. The length of time required to produce this effect is about five years; about half of it will be produced at the end of eighteen months. The above figures give the effect at average level; they are much more considerable during low water periods.

22. Variations in the level of the lakes' surface, due to winds and to change of barometric pressure, are frequent and irregular and at times violent. Variations of more than 6 inches are very common, often occurring hourly for many hours in succession, while variations of 2 or 3 feet within an hour are not uncommon. Besides these irregular variations there is a regular annual variation due to difference in rainfall, evaporation, and run-off, the water level being highest in midsummer and lowest in midwinter. The levels are affected also by the greater or less severity of the winter and the consequent greater or less decrease in the discharging capacity of the outlets by ice. In order to study the annual oscillations it is necessary to eliminate the irregular oscillations, and that is accomplished by using the average levels for a month. Using the monthly mean levels it is found that the regular fluctuation in Lake Huron-Michigan usually does not exceed 2 feet in any one year, but in a long series of years there is a great difference in the height to which high water will rise. The highest water (monthly mean) recorded for that lake was in June, 1886, and the lowest high water in June, 1896, the difference between the two being over 3½ feet. The first is what navigators of the Great Lakes call a high-water year and the second a low-water year.

23. It is evident that the average level of the lake may be lowered considerably without the change becoming immediately apparent, and that fact has been used as an argument to prove that the lowering caused by the Chicago Drainage Canal is of

no consequence to those interested in navigation. Since they can not see it they will not know it and will not feel it. The argument is fallacious. It is true that they can not see it immediately, but they will soon feel it and will know it through the most costly means of acquiring knowledge—the injury to their material interests. The oscillations will remain the same as before, but low water will fall lower and high water will rise less high. The average draft of vessels must be diminished by the amount that the average level is lowered unless the depth be restored by remedial works.

24. The most important lake traffic is now carried on in large freight carriers which are loaded down to the greatest draft that can be carried into the harbours or through the channels between the lakes. With the depth now available they are usually loaded to a draft of about 19 feet, but careful watch is kept on the stage of the waterways and advantage is taken of any temporary increase of stage to load the vessels deeper. In the modern vessel each inch of increased draft adds about 50 tons to the carrying capacity. To lower the water surface 6 inches is to reduce the capacity of the vessel about 300 tons. If the freight rate on iron ore be taken at 55 cents per ton, exclusive of the cost of loading and unloading, and the number of trips during the season at 22, there appears a loss of over $3,600 for the season for each vessel. The number of vessels navigating the Great Lakes which draw 19 feet or more is 417, and their tonnage is 1,541,414 tons, which is about three-quarters of the total tonnage of the Great Lakes. It is a conservative estimate that the loss to the navigation interest resulting from a reduction of 6 inches in the depth of water is $1,500,000 per annum, which, capitalized at 4 per cent, amounts to a loss of $37,500,000. With a greater reduction of depth the resulting loss would be proportionately greater. The number of deep-draft vessels and the share of lake traffic which they carry is increasing each year, while the lake traffic itself is increasing with marvellous rapidity. The total unmber of tons of freight which passed through Detroit river in 1905 was about 58,000,000, valued at about $615,000,000. The records for the year 1906, so far as they are made up, indicate that the number of tons which passed through the Detroit river in 1906 exceeded 65,000,000, valued at $690,000,000. The loss will be even greater in the future than it is now. It is quite certain that the loss will not pass unnoticed, and that the governments will be compelled to restore the depth either by additional excavations or by regulating works.

25. Careful estimates have been made of the cost of deepening the channels between the lakes 1 foot. To deepen the Detroit river is estimated to cost $4,115,430. In Lake St. Clair the full depth of the lake is now utilized, and any lowering of its surface involves the excavation of an artificial channel entirely across the lake, a distance of 18 miles, of which it has been necessary heretofore to artificially deepen only one-third. To deepen the channel here and at certain shoal places in St. Clair river and at the foot of Lake Huron is estimated to cost $1,080,720. It results in replacing open lake navigation by canal navigation for a distance of 12 miles in Lake St. Clair, a decided disadvantage.

26. The data are not at hand for an accurate estimate of the cost of restoring the depths in the harbours of the Great Lakes, but an approximation may be reached from a consideration of the cost of improvements heretofore made. The depth to be gained being small, the cost will not vary largely, whether that gain be a few inches more or less. The United States has improved thirty-five harbours on Lakes Michigan, Huron and Erie, and has expended thereon about $20,000,000, of which about one-quarter was for maintenance. The average increase of depth is 10 feet and the cost per foot of increase was therefore about $1,500,000, but as the cost of a small increase would be much greater per foot than an increase of 10 feet, and as several harbours on Lake Ontario are to be added, the cost per foot in this case would probably be not less than $2,000,000 for harbours in the United States. The Canadian government has improved over fifty harbours on Georgian bay, Lakes Huron, St. Clair, Erie and Ontario. A large amount, say $3,000,000, must be added for increasing the depth of these harbours.

27. The depth in the Welland canal and in the six canals employed to overcome rapids in the St. Lawrence river is now 14 feet, of which every inch is needed. At the head of the Cornwall canal in the St. Lawrence river the abstraction of 14,000 cubic feet of water per second at Chicago will lower the surface about 6¾ inches at mean level and much more at low water. To restore the depth in these canals involves the reconstruction of all the end locks and deepening the approaches thereto, and is estimated to cost $2,500,000.

28. The total cost of restoring the depth in the harbours of the Great Lakes and the channels between the lakes is therefore roughly $10,000,000, and of restoring it in the Welland and St. Lawrence canals is $2,500,000 additional, or $12,500,000 in all.

29. The shores of the Great Lakes are very far from being fully developed, and it is highly probable that many harbours not now in existence remain to be created, or if in existence remain to be improved. The lowering of the lakes' surfaces increases the difficulty and cost of such improvements. This consideration is of importance, although no money value can now be given it.

30. The expenditure of the sums mentioned above will restore the depths now existing, but it will not prevent very serious annoyance to the navigation interests during the execution of the work. The time required will be several years, and in the meantime the vast commerce of the Great Lakes will be hampered, not only by deficient depth, but also by the occupation of the channels, already crowded with commerce, by the excavating machines.

31. It is evident from the foregoing that large bodies of water can not be diverted by the Chicago drainage canal without very serious detriment to the navigation interests of the Great Lakes and of the St. Lawrence valley. The greater the amount of water diverted the greater the injury. Chicago being one of the principal lake ports, there will be very few communities which will feel this detriment more than she will.

32. In the presence of these interests the effect upon Niagara falls may be simply mentioned with a reference to our former reports upon that subject. The volume of Niagara falls will be reduced by the full amount diverted at Chicago.

33. The city of Chicago was organized as a city in 1837, with a population of about 4,000. Its population in 1840 was 4,479; in 1850, 28,269; in 1860, 112,172; in 1870, 298,977; in 1880, 503,185; in 1890, 1,099,850; and in 1900 it was 1,698,575. It is estimated now to be about 2,000,000. Should the rate of growth continue which prevailed between 1880 and 1900, the population will be 3,000,000 in the year 1922 and 4,000,000 in the year 1939. It is impossible to foretell its future growth, but there is no reason to doubt that it will in time greatly exceed the largest of these numbers. The city is the commercial centre of an empire still in its infancy. It is entirely reasonable to expect a population of five or six millions or more. It will cover territory not now covered. Methods of sewage disposal appropriate to one portion of it may not be appropriate to other portions. If the diversion of 20,000 cubic feet per minute (or 333⅓ cubic feet per second) for each 100,000 of population, as required by the State law, is accepted as the standard, then from 17,000 to 20,000 cubic feet per second will be required, and the 14,000 cubic feet now contemplated will not be sufficient. Even more than 20,000 cubic feet will be required for a population greater than 6,000,000. The diversion of 20,000 cubic feet per second would lower Lakes Michigan and Huron about 13 inches and Lake Erie about 11 inches. Plans which lead to this result should be carefully scrutinized.

34. One of the reasons given in 1889 for adopting this method of disposing of Chicago sewage was that it offered the advantage of furnishing a navigable waterway from Chicago to the Mississippi river. The navigable depth or capacity of such a waterway has never been authoritatively fixed. Congress has considered a depth of 14 feet to the extent of ordering a survey and estimates of cost for that depth, but the Illinois legislature has declared its policy to be to secure the construction of a deeper channel, not limiting its proposed capacity in terms, but defining it to be 'of the greatest practicable depth and usefulness for navigation.' See joint resolutions adopted May 27, 1889, copy omitting preamble hereto appended, marked 'E.' A fair

interpretation of this language gives a proposed depth of 20 feet, that being the depth required to accommodate the most important vessels now navigating the Great Lakes. It will require a volume of water greater than the 10,000 cubic feet per second originally contemplated.

35. The amount which it is proposed to divert from the Calumet river, 4,000 cubic feet per second, is fixed by accident rather than by design, being the excess which the Chicago drainage canal is found capable of carrying after providing for the 10,000 cubic feet from the Chicago river, for which it was originally constructed. It is certain that no greater amount than 4,000 cubic feet can be diverted from the Calumet without checking the flow from the Chicago river, and thus giving relief to a suburban portion of the city at the expense of the richest and most populous centres.

36. It is equally certain that the diversion of 4,000 cubic feet or less will not at all times afford the desired relief to the Calumet. In the first place it provides for a population of only 1,200,000, a number which will in all probability be greatly exceeded at a day not remote. At present the population is estimated at about 200,000, but for the present necessities it is not a question of population, but of drainage area and rainfall. A flood discharge of the Calumet has been measured at Riverdale, about 10 miles from its mouth, of about 13,300 cubic feet per second from a drainage area of about 700 square miles, and even that amount may at times be exceeded. The total drainage area of the Calumet region, including the Sag Valley, is about 825 square miles, and assuming the discharge to increase in proportion to the area, the flood discharge to be provided for is over 15,700 cubic feet per second. The diversion of only 4,000 cubic feet will not prevent a heavy discharge into Lake Michigan in time of flood. To overcome this difficulty it is proposed, if suitable legislation can be secured, to divert the upper Calumet into Lake Michigan through an artificial channel to be excavated in Indiana about 17½ miles east of the State line. Indiana has not authorized such diversion, but supposing it to be accomplished, there will still be times when the discharge from the drainage area remaining to be cared for by the canal, 238 square miles, will exceed 4,000 cubic feet per second. The excess must enter Lake Michigan through the mouth of the Calumet, and at such times the system will fail. Of course, it makes no provision for the future occupation of the upper Calumet region and the pollution of the lake from that source. It thus appears that the diversion of the Calumet river as now proposed by the sanitary district will not be complete even for the present, and will not make adequate provision for the future.

37. The diversion of 4,000 cubic feet per second provides for a population of 1,200,000 by the standard fixed by the State law. The population of the Calumet region is now about 200,000, and until it reaches 1,200,000 only a part of the flow will be needed for sanitary purposes during a large part of the year; but the channel must be there, available for the full flow, if this method of sewage disposal is to be useful to any population, however small. Likewise the channel from the Chicago river must be, as it is, large enough to provide for a population of 3,000,000, whether that number of people are ever to become tributary to the Chicago river or not. The channels having once been constructed, any reduction of flow below their fullest capacity is a dead loss to the water-power dependent upon them. It has been said that it would be absurd to develop water-power at the cost per horse-power which this water-power costs if the drainage canal be included, and that is true. But being given the channels, it would not be absurd to use them to their fullest capacity. The Chicago Drainage Canal having been constructed with a capacity, as it turns out, of 14,000 cubic feet per second, full power development will call for the whole of that amount, and in fact power works are now under construction at Lockport to utilize it. Inasmuch as the sanitary requirements by the standard, fixed in the State law, are only 6,667 cubic feet per second for the present population of 2,000,000, it is evident that power development, incidental though it be, does lead to demands for water not required for sanitary purposes.

38. It remains to be seen whether any diversion, complete or otherwise, is necessary to preserve the health of Chicago. Upon this point the commission sought the

advice of two eminent sanitary engineers—Messrs. Rudolph Hering and George W. Fuller—whom it instructed as follows, viz.: 'To examine the sanitary situation at Chicago, so far as it is affected by sewage disposal, and to report whether it is or is not necessary to the health of the city to extend to outlying territory the system which was adopted in 1889 for the main city. * * * The commission desires an emphatic opinion from authoritative sources as to whether the system of diverting the water of Lake Michigan in large quantities into the Illinois Valley is the only way to preserve the lives and health of the people of Chicago. It does not desire an investigation of the effect upon the navigation interests of the Great Lakes. It has satisfied itself upon that point. Nor does it wish to reopen the case of the Chicago Drainage Canal as designed and built. It accepts that as a fixed fact, with its attendant diversion of 10,000 cubic feet per second through the Chicago river. The extension of the system to the Calumet river alone is in question, and the question is, Are there not other methods of sewage disposal which can be applied here at a cost not exceeding much, if at all, the cost of the method proposed, and which will be equally effective in preventing the pollution of the lake? It desires a report upon the various systems which may be found available for application here, with a statement of their relative efficiency. It also desires a statement of their relative cost, so far as that can be given, without the preparation of detailed plans. The latest conclusions of sanitary engineers as to the amount of dilution which is required to make sewage inoffensive should be given.' These gentlemen visited Chicago, and after a thorough examination of the situation submitted a report, of which a copy is hereto appended, marked 'F.' The entire report should be carefully studied. Its conclusions only are here quoted. They are as follows, viz.:—

'The latest conclusions of sanitary engineers as to the amount of dilution which is required to make sewage inoffensive are that a dilution of 3⅓ cubic feet per second for each 1,000 persons connected with the sewers, as provided for in the enactment of the Ilinois legislature in 1889, is as low a figure as it is now possible to state. We believe that with the elimination of objectionable trade wastes and the occasional dredging of the river this amount of dilution will be sufficient to prevent offensiveness.

The extension of the dilution method to the outlying territory is not the only way to preserve the lives and health of the people of Chicago. The application of this method, with flow of 10,000 and 14,000 cubic feet per second, respectively, for the area tributary to the present drainage canal, will serve populations not exceeding 3,000,000 and 4,200,000 respectively. For greater populations other methods of sewage disposal will be required.

For the Calumet area, as well as other districts, there are several methods for the disposal of sewage as effective as the present method of dilution in preventing the pollution of the lake waters.

All these methods involve intercepting sewers and pumping stations to collect and deliver the sewage at suitable sites. Septic tanks are used for partially clarifying the sewage, which may then be applied to any one of three methods of filters, viz., intermittent sand filters, contact filters, and sprinkling filters.

All of these filters if well built and well managed remove the suspended and organic matters so that the effluents are practically clear and nonputrescible. The removal of bacteria by these three types of filters averages at least 98, 80, and 90 per cent respectively. Such effluents may be discharged into any of the water courses of the Calumet region.

The approximate total costs, liberally estimated, without the preparation of detailed plans, for a population of 1,200,000, are as follows:—

A.—*Intermittent sand filters.*

Construction	$11,063,000
Annual cost of operation, $866,000, capitalized at 5 per cent	17,320,000
	$28,383,000

B.—*Contact filters.*

Construction	$11,787,500
Annual cost of operation, $551,000, capitalized at 5 per cent	11,020,000
	$22,807,500

C.—*Sprinkling filters.*

Construction	$ 9,257,500
Annual cost of operation, $419,000, capitalized at 5 per cent	8,380,000
	$17,637,500

The present population on the Calumet area of the sanitary district being less than 200,000 would naturally require but a portion of the cost of estimated works and of their operation to be expended at the outset.

Of the available methods of disposing of the sewage of the Calumet area other than by dilution, the sprinkling filter method, being the cheapest both in cost of construction and of operation and accomplishing an adequate degree of purification, is clearly the most advantageous one.'

These engineers stand in the front rank of their profession as sanitary experts. One of them, Mr. Hering, was chairman of the commission of 1887, whose report to the Mayor and city council of Chicago was the foundation of the subsequent legislation and led to the construction of the drainage canal. The conclusions reached are those of friends of Chicago, and not of her enemies or rivals.

39. A method of sewage disposal for the Calumet region is proposed which for a population of 1,200,000 is estimated to cost $17,637,500. For the present population of about 200,000 only a part of the expense need be incurred, and the works can be developed as the population increases. It can, when the necessity arises, be applied with a population much exceeding 1,200,000. The cost of diverting the Calumet river into the Chicago drainage canal is estimated at $12,000,000. The greater efficiency at present and in the future of the method now proposed would justify a considerable increase of cost, but in view of the fact that the entire expense of the diversion must be incurred at the outset, while by the new method the expenditures will be regulated by the growth of population, the difference in cost may be considered unimportant.

SUMMARY.

40. The following is a summary of the more important facts recited in this report:

(*a*) Chicago obtains its water supply from Lake Michigan, and to avoid polluting it must either dispose of its sewage otherwise than in the lake or place its intakes for water at a great distance from the city.

(*b*) The topography of the country favours the discharge of the sewage into the Des Plaines river, a tributary of the Mississippi, through two depressions in the divide which separates that river from Lake Michigan.

(*c*) The slope on the lake side of the divide is drained by two streams, the Chicago river and the Calumet river, into which the sewers of the city empty. By a cut through the northerly depression the flow of the Chicago river has been reversed and diverted into the Des Plaines river instead of into Lake Michigan, and by a cut through the southerly depression the same process can be applied to the Calumet river.

(*d*) To make this reversal effective the channels must be large enough to take all the water which falls upon the respective drainage areas during the most violent rain storms. This amount is estimated at 10,000 cubic feet per second for the Chicago river and 15,700 cubic feet per second for the Calumet river.

(*e*) The city of Chicago was originally built upon the Chicago river, and that stream now drains the richest and most populous part of the city. It is now spreading over the Calumet region.

(*f*) In 1889 the plan of diverting the Chicago river into the valley of the Des Plaines was definitively adopted, and the Chicago drainage canal was undertaken. It was designed to carry 10,000 cubic feet per second. Though not entirely completed, it has been in use since January, 1900. The amount expended upon the canal and accessory work is about $41,000,000.

(*g*) The Illinois law which authorized the canal required a flow of 333 cubic feet per second for each 100,000 of population in order to render the sewage inoffensive. This amount of dilution is probably not excessive. It is reasonable to expect a population in a future not remote of five or six millions or more, involving the diversion by this standard of some 20,000 cubic feet per second. The Chicago river with its 10,000 cubic feet provides for a population of 3,000,000. The present population of the city is about 2,000,000.

(*h*) It is now proposed to apply to the Calumet river a treatment similar to that applied to the Chicago river, viz.: to reverse its flow; so that instead of discharging into Lake Michigan it shall discharge into the Des Plaines, but for a part of the new route it must follow the drainage canal already excavated for the Chicago river.

(*i*) Although the Chicago drainage canal was designed to carry 10,000 cubic feet per second, it is found to have, in its completed rock portion, an actual capacity of 14,000 cubic feet. This additional capacity fixes the amount which it is proposed to divert from the Calumet at 4,000 cubic feet per second. Any greater amount from the Calumet will overtax the drainage canal at the expense of the richest part of Chicago and for the benefit of a suburban part.

(*k*) The diversion of only 4,000 cubic feet will not be effective at all times, since a much greater amount must be diverted from the Calumet during heavy rain storms if the lake is to be protected. Moreover, it provides for a population not exceeding 1,200,000, which number will probably be exceeded at a date not far distant.

(*l*) The large channels necessary to provide for the contingencies of rain storms are capable of discharging a volume of water largely in excess of sanitary requirements during the greater part of the year, but the development of water-power creates the demand that they be employed to their full capacity throughout the year.

(*m*) The diversion of large bodies of water from Lake Michigan for supplying the drainage canal has not been authorized by Congress, but there appears to be a tacit general agreement that no objection will be made to the diversion of 10,000 cubic feet per second, as originally planned.

(*n*) The diversion of 10,000 cubic feet per second will lower the levels of Lake Michigan-Huron, Lake St. Clair, Lake Erie, Lake Ontario, and the St. Lawrence river, besides the important connecting channels, the Detroit and St. Clair rivers, by amounts varying from 4¼ to 6¼ inches for the different waters, and the diversion of 14,000 cubic feet will lower them from 6 to 8½ inches. The diversion of 20,000 cubic feet will lower Lake Michigan-Huron about 13 inches and Lake Erie about 11 inches.

(*o*) The lake traffic which passed through the Detroit river in 1905 was about 58,000,000 tons, valued at about $615,000,000. It is increasing annually with marvelous rapidity. The records for the year 1906, so far as they are made up, indicate that the number of tons which passed through the Detroit river in 1906 exceeded 65,000,000, valued at $690,000,000. The lowering of the water surface has a very injurious effect upon this traffic, and upon that of the Welland and St. Lawrence canals. Chicago being one of the principal lake ports, there will be very few communities which will feel the injury more than she will.

(*p*) The cost of restoring the depth in the harbours of the Great Lakes and the channels between the lakes is estimated at $10,000,000, and of restoring it in the Welland and St. Lawrence canals at $2,500,000. This expenditure would not prevent very serious annoyance to the navigation interests during the execution of the remedial works, which would occupy several years. In Lake St. Clair navigation of the open lake would be replaced by that of an artificial channel or canal with submerged banks.

(*q*) The extension to the Calumet region of the method of sewage disposal already

applied to the Chicago river is not necessary to preserve the health of Chicago, there being other and better methods available for the Calumet region. The final cost of these methods is somewhat greater than that of the one proposed, but the works can be developed as the population increases, and only a part of their cost need be incurred at present, while their greater efficiency justifies the increase of final cost.

(*r*) The diversion of 10,000 cubic feet of water per second at Chicago will render practicable a waterway to the Mississippi river, 14 feet deep. Any greater depth must be obtained by the abstraction of more water from Lake Michigan and at the expense of the navigation interests of the Great Lakes and of the St. Lawrence valley.

(*s*) The effect upon Niagara Falls of diverting water at Chicago is of secondary importance when considering the health of a great city and the navigation interests of the Great Lakes and of the St. Lawrence valley, but it is proper to note that the volume of the falls will be diminished by the full amount diverted at Chicago.

RECOMMENDATIONS.

41. The waters of Lake Michigan in the United States, the waters of Georgian Bay in Canada, and the waters of Lake Superior partly in the United States and partly in Canada all form sources of supply of the Great Lakes system, finding their way by the St. Lawrence to the sea. All are interdependent and there can be no diversion from any of them without injury to the whole system. By Article XXVI. of the treaty of 1871 it is provided that 'navigation of the River St. Lawrence, ascending and descending from the forty-fifth parallel of north latitude, where it ceases to form the boundary between the two countries, from, to, and into the sea, shall forever remain free and open for the purposes of commerce to the citizens of the United States, subject to any laws and regulations of Great Britain, or of the Dominion of Canada, not inconsistent with such privileges of free navigation.' It is desirable that in any treaty arrangement the waters of Lake Michigan, Georgian bay, and all other waters forming part of the Great Lakes system should be declared to be 'forever free and open for the purposes of commerce' to the citizens of the United States and the subjects of His Britannic Majesty, subject to any laws and regulations of either country not inconsistent with such privilege of free navigation.

42. The preservation of the levels of the Great Lakes is imperative. The interest of navigation in these waters is paramount, subject only to the right of use for domestic purposes, in which term is included necessary sanitary purposes. In our report of November 15, 1906, upon the application of the Minnesota Canal and Power Company to divert certain waters in Minnesota we recommended, among other things—

'that any treaty which may be entered into should define the uses to which international waters may be put by either country without the necessity of adjustment in each instance, and would respectfully suggest that such uses should be declared to be (*a*) uses for necessary domestic and sanitary purposes; (*b*) service of locks for navigation purposes; (*c*) the right to navigate.'

It is our opinion that so far as international action is concerned a treaty provision of that kind is all that is required in this case. We accordingly renew our recommendation of November 15, 1906, just quoted.

43. A careful consideration of all the circumstances leads us to the conclusion that the diversion of 10,000 cubic feet per second through the Chicago river will, with proper treatment of the sewage from areas now sparsely occupied, provide for all the population which will ever be tributary to that river, and that the amount named will therefore suffice for the sanitary purposes of the city for all time. Incidentally it will provide for the largest navigable waterway from Lake Michigan to the Mississippi river, which has been considered by Congress.

We therefore recommend that the Government of the United States prohibit the diversion of more than 10,000 cubic feet per second for the Chicago Drainage Canal.

All of which is respectfully submitted.

W. F. KING,
Chairman, Canadian Section.

O. H. ERNST,
Brigadier-General, U. S. Army, retired, Chairman, American Section.

GEO. C. GIBBONS,
LOUIS COTE,
Members, Canadian Section.

GEORGE CLINTON,
E. E. HASKELL,
Members, American Section.

Attest: W. EDWARD WILSON, *Secretary, American Section.*
THOMAS CÔTÉ, *Secretary, Canadian Section.*

APPENDICES.

A. Report dated January, 1887, to the mayor and city council of Chicago, of the commission appointed to examine the drainage and water supply.

B.—Letter dated June 29, 1906, from Mr. Lyman E. Cooley, civil engineer, formerly chief assistant to the commission of 1887.

C.—Statement of expenditures by sanitary district of Chicago to December 31, 1905.

D.—Copies of all permits issued by the Secretary of War to the sanitary district of Chicago.

E.—Joint resolution of Illinois legislature adopted May 27, 1889.

F.—Report of Messrs. Rudolph Hering and George W. Fuller upon methods of sewage disposal available at Chicago.

APPENDIX A.

CHICAGO, January, 1887.

To the Honourable Mayor and City Council of the City of Chicago :

GENTLEMEN,—On January 27, 1886, your honourable body passed a resolution authorizing the creation of a drainage and water supply commission. After being amended, February 23, it read as follows:—

'Whereas, pure water and scientific drainage are necessities of this community, and the people demand a system of water supply and drainage adequate to meet the requirements not only of the present, but of years to come, nor will any temporary expedient or makeshift satisfy them; and

'Whereas, a thorough and permanent system of supplying pure water to our citizens and caring for the drainage of the municipality can not be paid for out of current taxation, therefore it is desired that a plan shall be devised and perfected before the next meeting of the legislature to the end that necessary legislation may be had.

'For the purpose of carrying into effect the objects sought, there is recommended the appointment by the mayor of a commission to consist of one expert engineer, whose reputation is so high that his opinion and report will command the respect of the community, and with him one or two consulting engineers of like experience in engineer-

ing and sanitary matters. The duty of this drainage and water supply commission, made up as above set forth, should be to consider all plans relating to drainage and water supply which may be brought to its attention; to make such examinations and investigations and surveys as may be deemed necessary; to collect all information bearing on this problem; to consider all recent developments in the matter of sewage disposal, and their application to our present and future needs; to consider and meet necessity of increasing our water supply and of protecting the same from contamination; to remedy our present inadequate methods of drainage and sewage disposal; to consider the relations of any system proposed to adjacent districts, and whether there may not be a union between the city and its suburbs to solve the great problem; to determine the great question as to the interest which the state and the United States may have in the disposal of sewage by way of the the Illinois river, and to devise plans to meet any objections thereto, if such a system shall be thought best; and in general to consider and report upon any and all things which relate to the matter of water supply and drainage of the city of Chicago.

'The commission should report on the whole matter committed to it in the most full and comprehensive manner, with maps, plans, and diagrams complete, and accompany the report with estimates of the first cost and annual requirements for the maintenance of the system proposed.

'The report of the commission should be made as early as practicable, and not later than the convening of the next session of the Illinois legislature in January, 1887.

'In consideration of the foregoing, be it

'Resolved, That the mayor be, and is hereby, authorized and directed to employ on behalf of the city one expert engineer of reputation and experience in engineering and sanitary matters, at a salary not to exceed $10,000 per annum, and also to employ such consulting engineers, not exceeding two in number, as may seem necessary, and such Assistant Engineers as may be required, all to be paid according to services rendered, for the purpose of carrying out the objects set forth in the preamble hereto. For the fees of said assistant engineers and for all expenses connected with said work there shall be allowed not to exceed the sum of $20,000. All fees, salaries, and expenses connected with said work shall not exceed in the aggregate the sum of $30,000, and the same shall be paid from the water fund of the city upon vouchers audited by the mayor and city comptroller.'

In accordance with the terms expressed herein his honour Carter H. Harrison appointed Rudolph Hering as chief engineer, Benezette Williams and S. G. Artingstall as consulting engineers, who together should constitute a commission. Mr. Hering entered upon duty March 28, Mr. Williams, September 17, and Mr. Artingstall, December 21, 1886.

The investigation designated by the resolution was a formidable one, comprising no less a task than the consideration of the entire subject of the future water supply and drainage of Chicago. It appeared doubtful from the beginning that a report such as was demanded could be furnished within the specified time, for the simple reason, if for no other, that observations of the lake phenomena and of the flow of certain rivers should be extended over at least one year, covering four consecutive seasons, in order to draw satisfactory deductions.

But the large amount of work alone that was asked for made it impracticable to present a complete report in so short a time. It was expected, however, that results could be reached sufficient to indicate the character of legislation required to carry out any project that might be determined upon, and that therefore a preliminary report having this end in view could be made at the stated time, leaving to a later date the presentation of a report outlining the detailed features of the scheme recommended and embracing the minor results of the entire inquiry.

The present communication is to cover the ground indicated for the preliminary report, and besides containing the conclusions reached regarding the main features of the proposed project, it contains also a brief review of the work done during the past year and of what still remains to be done.

The month of April was devoted to a general examination of the subject of the territory to be investigated, and of the various suggestions that had been made toward effecting a solution of the problem.

The examination disclosed the fact that the city is sometimes greatly suffering from the offensive condition of parts of the Chicago river and its branches, caused by the discharge of sewage into the same, and from the occasional contamination of its water supply, brought about by the discharge of the polluted contents of the river into the lake. It also disclosed the fact that almost every conceivable way of dealing with these questions had been suggested and in some forms applied during the past thirty years.

The problem therefore demands the attainment of two ends—the protection of the water supply and the removal of the river nuisance. As the water must be taken from the lake, it is evident that both its pollution and the objectionable condition of the rivers should be prevented by a better disposition of the sewage. It is, therefore, the latter question which constitutes the main object of this investigation.

Among the possible methods of getting rid of the Chicago sewage there are but three that have been deemed worthy of an extended consideration, namely: A discharge into Lake Michigan, a disposal upon land, and a discharge into the Des Plaines river. The preliminary work has, therefore, been confined to these three projects, and was classed as topographic, hydrographic, and miscellaneous.

At the time when the present commission began its labours the topographical work had already received some attention. Surveys were being made of the Des Plaines river from Bridgeport westward under the direction of Mr. Artingstall, city engineer. These surveys were continued, and have now been completed as far as Joliet. They include contours of the entire valley and borings to rock between Bridgeport and Lemont. In order to understand the hydrography of the Des Plaines Valley above the point where the Chicago sewage could be dischargel into it, and also to ascertain the probable magnitude and effect of floods in the river, a survey was made of its bed as far north as Northfield township. To determine the area of the basin its entire divide was located. To ascertain the practicability of diverting the flood waters from the upper portion of the Des Plaines and North Branch watersheds directly into the lake, and thus avoiding the difficulties which would arise from their passing through the Chicago river, all feasible lines were surveyed. Finally, a few levels were taken of the area adjoining the city wherever no connected levels existed to show the general topographical features of the territory over which the future city will spread out and from which the drainage will require artificial removal.

The hydrographic work consisted in ascertaining the flow of the Des Plaines river, the rainfall upon its area, its flood discharges, the character of its bed, and the probable effect of discharging the Chicago sewage into it when diluted by a large and constant stream of water from the lake. It consisted, further, in examining the nature of the currents in the lake and in studying the rise and fall of its level, and in ascertaining the amount and character both of the sewage discharged into it and of the deposits in the river and lake in front of the city to determine the effects of the present sewage disposal.

Inquiries and surveys were made to show the feasibility of purifying the Chicago sewage by filtration on land. Land damages were carefully estimated for the different schemes; existing records were searched concerning borings and excavations made in and about the city, so that the practicability of certain lines of tunnels could be discovered; the probable growth of the city and its suburbs, as well as the probable distribution of the future population, received a careful attention, and, finally, a large number of data were compiled which pertain to the existing works of water supply and sewerage in Chicago and the adjoining towns.

In reporting the result thus far gained we will present them in the order most convenient for discussion, but before doing so will briefly describe the present manner and effect of the sewage disposal, as shown by this investigation.

PRESENT SEWAGE DISPOSAL.

The sewage works of Chicago and suburbs have been planned on what is called the combined system, in which the sewers serve for the removal both of sewage and rain water. In the town of Evanston they empty into the lake. In the town of Lakeview they partly discharge into the lake and partly into the North Branch. From the north and west divisions and part of the south division of Chicago, the drainage enters the Chicago river and its branches, and from the remaining part of the south division it flows into the lake at three outlets, situated respectively at Twelfth, Twenty-second and Thirty-fifth streets. The sewers of Hyde Park discharge into the lake, excepting those of Pullman, where the sewage is disposed of on land. The town of Lake, including the stock yards district, drains into the south fork of the Chicago river.

When the sewage works of this city were designed, in 1856, by Mr. E. S. Chesbrough, it was apprehended that ultimately some means would have to be found to change the water in the river from time to time or to keep the sewage entirely out of it. The first step toward improving the condition of the river was taken by deepening the Illinois and Michigan canal, so as to cause a current from the lake to the Des Plaines river at Lockport. The next step was the building of the Fullerton avenue conduit in order to produce a circulation in the North Branch; and the last step was the erection of the canal pumping works to increase the flow in the river, which had become greatly polluted.

The influence of these works is confined to the main river and its north and south branches. But the south fork of the latter, receiving a large amount of sewage from Chicago and the town of Lake, and charged with the waste from the Union Stock Yards and packing houses, has no artificial means for a circulation of its water, and as a consequence is in a condition of great filthiness.

The accompanying diagram* has been prepared to show the present pollution of the Chicago river and its branches during the time when all of their water is discharged into the canal by the Bridgeport pumps. On the left are shown the main river and the north branch, one above the other, their combined waters forming the south branch, and reaching Bridgeport on the right, where they are lifted into the canal.

At the latter point the south fork is shown as joining it. The shaded portions indicate the amount of sewage entering and passing the respective points, and the blank portions the lake water diluting it. The degree of dilution is shown by the relative areas. It diminishes in the north branch from Fullerton avenue to the south branch, and becomes still less toward Bridgeport, and finally receives the foul waters of the south fork.

The depth and character of sewage deposits in the river and harbour, as might be expected, vary considerably. They are not great in the track of the vessels, but increase towards the docks and quieter portions of the slips, where they reach a depth of from 1 to 4 feet. While the deposits in the channel are of a heavier kind, such as cinders, those in the docks are mostly a foul mass of decomposing organic matter. No form of life is found to exist above Clark street bridge as far north as Clybourn place and as far south as Ashland avenue. The effect of this condition of the river is to endanger the purity of the water supply whenever the river, with its accumulated deposits, flows into the lake, which occurs when the rain water that finds its way into the river exceeds the amount pumped into the canal. If this excess is great, as in the spring and occasionally in the summer months, the contamination of the lake is considerable, and must constantly increase.

From the foregoing it is seen that the present method of disposal of the sewage from Chicago and its suburbs is partly by discharging it into Lake Michigan, but mainly, except during floods, by discharging it into the Des Plaines river.

* Omitted ; printed in House Ex. Doc. No. 264, 51st Cong., 1st sess.

FUTURE POPULATION.

The first question which required an answer, and upon which many of the subsequent inquiries depended, was the population which it is economical and advisable to consider at present, and the extent of territory upon which such a population will be located.

The growth of Chicago has been frequently quoted as phenomenal. Estimates made thereof for various purposes have turned out to be rather under than over the actual result.

It is taken for granted that Chicago and its suburban towns will have to dispose of their sewage so that the water supply for the entire community residing near the lake from the south line of Hyde Park to the north line of Evanston will be guarded against pollution by the sewage from any one of its separate communities. For this purpose the whole populated area within the above limits is considered as forming one city with a common interest.

The growth of this metropolis was obtained partly from the United States census and partly from the school census of Cook county, which gave a record up to the summer of 1886. In order to forecast the probable ratio of the future increase it was desirable to compare this growth with that of other cities. By considering the ratio in increase elsewhere, and including the natural suburbs of each city, a fair and instructive basis of comparison was obtained; and by realizing the respective natural advantages for growth in each of the communities the probable ratio for Chicago was determined with a satisfactory degree of exactness.

The accompanying diagram shows the results of this comparison. It represents by curves the population of the largest cities in the country since 1790, not as usually quoted from the census, giving the inhabitants on certain arbitrary areas fixed by law, but as virtually making up the population of the respective municipalities, by including adjacent towns and natural suburbs, the only method which enables the true growth of the great cities to be recognized. For instance, the New York centre naturally includes Brooklyn, Jersey City, Hoboken, Newark, and other suburbs, and Chicago, the entire territory from Hyde Park to Evanston.

The diagram indicates that the character of growth of the different cities permits them to be divided into two distinct classes. Philadelphia, Boston, St. Louis and Cincinnati show very much the same character of increase, and represent by comparison the more conservative communities. New York and Chicago, on the other hand, while showing a remarkable resemblance to each other, form quite a contrast to the rest of the cities, and might be called the more progressive communities. The diagram finally indicates the time when the Chicago curve, which was the lowest one prior to 1864, intersected in turn those of St. Louis, Cincinnati, Boston, and there is a high degree of probability of its intersecting the Philadelphia curve in or before 1891—i.e., in four years from now—after which Chicago will be the second largest centre of population in America.

As it is not practicable in so young a city as Chicago to forecast a definite line of growth, it is preferred to give the probable maximum and the probable minimum between which the true line will most likely be contained. The minimum line represents a growth resembling that of New York, and the maximum line assumes the ratio of increase per decade to be constant instead of gradually decreasing as in most other cities. The result indicates that the population of Chicago and suburbs will be 2,500,000 between the years 1905 and 1915, or about three times the present population in eighteen to twenty-eight years.

In providing public works for large communities it must be borne in mind that it is economical to invest only such sums as will bring a return within a certain number of years, leaving expenditures for benefits that will be realized only at a later time to a later generation. This fact, together with the probable growth of Chicago, shows it to be economical and judicious at present to plan works sufficiently extensive to dispose of the sewage of not less than 2,500,000 inhabitants.

In addition to the population the area that will be occupied by it has to be determined. While this is a far more difficult task, owing to the many accidental causes influencing the distribution of the population, it is possible nevertheless to outline the area sufficiently close for present purposes.

The future metropolis, with a population three times as great, will be distributed along the lake from South Chicago to Evanston, and will reach inland to the Blue Island Ridge in the south to the Des Plaines river in the centre, and to the higher parts of Niles Township in the north. Outside of these general limits, a more or less dense population will extend for some distance along the lines of railroad.*

As inferred above, it is proper to consider at this time the wants of the population that will reside upon this entire territory.

DISCHARGE OF THE SEWAGE INTO LAKE MICHIGAN.

To discharge the sewage from cities into comparatively large bodies of water is not only the usual, but often the best method for its disposal. Diluion and dispersion thoroughly expose it to the action of the oxygen contained in both the water and the superincumbent air; it is thereby gradually oxidized. Where the body of water is a large river with a strong current, the best conditions for such purification are found. Where it is a lake in which the circulation is slight and irregular, the efficacy of the method is less and depends for its success on the character of the currents and the relative amount of sewage to be discharged into it.

The hydrographic surveys of the lake made during the past season were therefore partly for the purpose of ascertaining, if possible, the laws governing the currents, so that we would know their effect in dispersing the sewage discharged into the lake. The trend of the shore currents was actually ascertained by daily recording the direction of spar buoys placed at the Chicago waterworks crib, at Michigan City and at St. Joseph. A large number of bottle floats were thrown into the lake at different points and different times for the same purpose. They were partly single surface floats and partly double, the lower one being placed at varying depths, according to the depth of the water. More than half of them have been picked up and returned, with place and date noted. The currents were also observed by means of large can buoys from an anchored tugboat at different points in the lake extending from Hyde Park to Evanston, about 6 miles from the shore. Two general lake trips were undertaken, one to St. Joseph and back to Grosse Point, and another one parallel with the shore around the head of the lake.

When the observations are completed and compiled in detail, some valuable information will be available for the question of water supply. Light will be thrown on the movement of the water under different winds and the sudden changes of temperature of the water at the crib and on the turbidness of the same.

The following results have a bearing on the question of sewage disposal: Where not affected by local conditions, the currents practically go with the winds in water of moderate depth and quickly respond to any change. In deep water also the surface currents run with the wind, but at the bottom and even at mid-depth the direction is usually different. The prevailing current along the shore of Cook County during the past summer has been observd to be toward the north, but it is possible that this result may be different during the winter months. In the open lake, wave action seems to be effective in preventing the permanent deposits down to a depth of about 60 feet; inside of the breakwater sewage deposits are found on the bottom.

The general deduction from these results is clear that, as no constant current exists which would carry the sewage away in one direction, it should be discharged into the lake at one end of the future city, while the water supply should be obtained as far away from it as practicable toward the other end, a conclusion which is being

* Here occurs a diagram showing the growth of several population centres in the United States, not here produced.

acted upon in the other large lake cities. The proper place from which to bring the water would be opposite Grosse Point, and the sewage discharge should be east of Hyde Park. While it might be practicable to allow the sewage in its crude form to enter the lake under such conditions for many years, the necessity would arise later for clarifying it at least partially previous to its discharge. It could not be allowed to run into the river as at present, but the dry weather flow and a considerable amount of storm water would have to be intercepted and carried to the outfall through many miles of special conduits. This entire quantity would have to be raised by pumping in order to get sufficient head to empty into the lake, while the diluted sewage during storms, in excess of the capacity of the intercepting sewers, would be allowed to discharge directly into the river.

The water supply would have to be brought from Grosse Point in large conduits to the several pumping stations scattered over the city and its present suburbs. The circulation of the water in the Chicago river and branches would have to be maintained practically as it is at present, because the removal merely of the dry-weather flow of sewage would not altogether prevent its pollution.

DISPOSAL ON LAND.

We shall not at this time enter into a general discussion of the principles underlying land purification of sewage, or make historical references showing the success or ill success of the method as practised elsewhere. We will simply state that with good management under ordinarily favourable conditions a disposal on land proves satisfactory, so far as the purifications of the sewage is concerned, and that with proper conditions in the way of good markets and a favourable soil and climate, sewage farms can be operated on a large scale after the sewage is delivered upon the same without financial loss.

In speaking of a sewage farm of the magnitude required for the metropolitan area of Chicago, it is not understood as being land devoted primarily to the raising of crops, using the sewage only when and where it would most promote the growth of vegetation. The primary object would be the purification of the sewage on an area of land as small as could serve the purpose. Technically speaking, the sewage disposal would be by means of intermittent filtration rather than irrigation. To carry out such a scheme for Chicago involves the following:—

(1) The acquirement of sufficient land suitable for the purpose.

(2) A comprehensive system of intercepting and collecting sewers carrying the sewage to the farm.

(3) Pumping works of a capacity to handle all the dry weather flow of sewage and a certain proportion of storm water.

(4) A thorough underdrainage, levelling, and preparing of beds for the filtration areas.

(5) A system of underground conduits and surface carriers for distributing the sewage over the ground, and a system of open ditches for removing the purified water to the nearest water courses.

(6) Buildings, roads, and a complete farming outfit.

(7) An organization for properly distributing the sewage, for carrying on the farming operations, for conducting the business of disposing of the crops in the best market.

In making estimates for the size of intercepting sewers, conduits, pumps and area of land required we have used as a basis a population of 2,500,000 people, with an average dry-weather sewage discharge of 150 gallons, or 20 cubic feet, per head daily, and made provision for storm water equivalent to one-fifth of an inch in twenty-four hours over all portions of the district now drained or likely to be drained by a combined system of sewers, allowing surplus water to escape into the rivers and lakes.

The dry-weather flow of sewage would therefore be 50,000,000 cubic feet per day, and the maximum flow of storm water 65,000,000 cubic feet per day, making a total maximum discharge of 115,000,000 cubic feet.

From an examination of rainfall tables we conclude that the annual amount of storm water that would be carried off by such an intercepting system would range from 9 to 12 inches, an average of which in round numbers may be taken at 40,000 cubic feet per acre per annum over the area drained by a combined system of sewers. It is practicable, however, to exclude the storm water from the sewers over a large portion of the future city by adopting the separate system of sewage. The area north of the town of Jefferson and of the middle of Lakeview may be treated to advantage in this way, and also a large portion of Hyde Park, Lake Calumet, and other adjoining towns.

Assuming that the area which does not allow the storm water to be entirely excluded is 140 square miles, the average daily amount becomes 10,000,000 cubic feet, which gives, when added to the sewage, 60,000,000 cubic feet, or 24 cubic feet per head of population per day to be provided for on the farm.

As the amount of land required to purify sewage can only be determined by experience, and as this has been very limited in our own country, we are forced to rely mainly upon that of Europe. Without going into details at present, we will simply state that a fair consensus of this experience justifies us in the conclusion that from 10,000 to 15,000 acres of land would be required to dispose of the sewage from the entire metropolitan area.

The only available territory for sewage filtration in the neighbourhood of Chicago consists of two sandy ridges in the town of Thornton, extending across the state line into Indiana, and in a sandy ridge crossing the town of Niles. The soil is quite favourable, but the character of the surface is such that the necessary preparation to make it suitable for filtration beds would be comparatively expensive. An enormous cost is, however, represented by the fact that the sewage would have to be collected by large intercepting sewers, lifted altogether some 90 feet, and carried about 20 miles before reaching the farms. We therefore consider such a project entirely impracticable.

The land treatment can only be seriously thought of in connection with the sewage disposal from the smaller areas mentioned above and comprising the extreme northern and southern parts of the future metropolis. The drainage of parts of Evanston, Lake View, and Niles might be taken to the sandy ground in the latter town, and that of the Calumet region to the sandy ridges in Thornton, should this method be found most advantageous when compared with others.

The preliminary investigation made for this purpose consisted in an examination of the grounds, in the projection of a farm, and in an estimate of the cost of preparing the same and delivering the sewage to it by intercepting sewers and conduits.

DISCHARGE OF THE SEWAGE INTO THE DES PLAINES RIVER.

A third solution of the drainage problem is rendered practicable by the fact that the divide between Lake Michigan and the Mississippi valley lies about 10 miles west of Chicago, with so slight an elevation that it is not a difficult matter to carry the sewage from the city westward into the Des Plaines river, and thence into the Mississippi river. The method of disposal, as previously explained, is in fact mainly the present one, most of the sewage now being carried across the divide by the Illinois and Michigan canal.

There are two low depressions between the future metropolis and the Des Plaines river—the Mud Lake valley, with the present canal, and the Sag valley, west of Lake Calumet. Neither is more than 10 feet above the lake, nor do they present any engineering difficulties for canal construction. It is therefore quite feasible to carry all the drainage from the territory ultimately to be occupied by the metropolis, extending from Lake Calumet to Evanston, into the Mississippi valley through these depressions, avoid-

ing thereby all possible lake pollution and permitting the supply of water to be drawn from any number of convenient points in front of the city.

The possibility of this solution was recognized as early as 1856 by Mr. E. S. Chesbrough, and the first step toward its adoption was taken, as already mentioned, by turning the sewage into the Illinois and Michigan canal. Not until quite recently, however, has it become practicable to consider the construction of a special waterway for sewage removal, because when the population was smaller the expense of the undertaking was too great.

The sanitary requirements demand a flow of water large enough to dilute the sewage sufficiently to make it inoffensive along the river at all times. Beyond this, any increase in the size of the channel to provide for the storm water which naturally enters it should be kept at a minimum. A glance at the map and an examination of the ground show the possibility of diverting the greater part of the storm water from the metropolitan district without serious difficulty. Both branches of the Calumet river can be diverted west of the Indiana State line into Wolf lake, and thence into Lake Michigan. The Des Plaines river can have its flood waters diverted into the North Branch near the north line of the town of Jefferson, and the combined waters can be led from Bowmanville directly into the lake. Salt creek, a branch of the Des Plaines river, can readily be turned southwardly near Western Springs, through a watercourse known as Flag creek, at one time evidently its old bed, discharging into the Des Plaines opposite Sag, and thus reducing the necessary storm water capacity in the new channel between Sag and Summit.

In order to determine the probable quantity of flood water which can thus be excluded, it was necessary to ascertain the maximum flood discharges from all the watersheds in question. This requirement called for a gauging of Des Plaines, North Branch and Calumet rivers; a gauging of the rainfall, which is a measure of the stream flow; a survey of the watersheds and an examination of the river channels. It was also necessary to make a reconnaissance of all possible lines for diverting the Des Plaines, the North Branch, the Calumet rivers, and Salt Creek, and a survey of those which were most important.

The results indicate that each one of these diversions is both practical and economical. By adopting the 'separate system' of sewerage for the territory lying north of the proposed Bowmanville channel, the surface drainage from this territory can be safely turned into the lake.

A second branch of the investigation extends to the elements governing the proper size of the waterway from which a large proportion of the storm water has been excluded. The area still draining into it will consist largely of paved streets and roofs, allowing of no absorption and shedding the water rapidly. It requires a careful consideration to determine the maximum quantity of water that may enter the proposed channel, and for which an ample allowance must be made to prevent a back flow of the polluted water to the lake.

The proper degree of sewage pollution in the new channel demanded a careful investigation. When sewage is mingled with a sufficiently large quantity of water it not only becomes inoffensive, but readily finds the oxygen which gradually purifies it. When the surface is covered with ice a greater dilution is necessary for this purpose than at other times when there is a constant replenishment of oxygen from the air. The proposed waterway should, of course, provide immunity from offence at all times.

The information upon which definitely to decide this question will be given in the final report, as the data have not yet been all collected, owing to the necessity of making actual tests of the oxidization of the canal water under the ice, which is being done for the use of the commission by Dr. J. H. Rauch, secretary of the State Board of Health. The summer conditions are presented in his late report on the water supply and sewage disposal of Chicago. The result of these analyses will be compared with those of other streams that are also polluted with sewage in order to show the rate of oxidization with varying degrees of dilution and aeration.

For the purpose of estimating the cost of the water channel we have assumed 3,600 square feet for the cross section and a velocity of the water 3 feet per second, or 2 miles per hour. This gives a discharge of 600,000 cubic feet of water per minute, or 24,000 cubic feet for each 100,000 persons, which we believe equal to the maximum requirements of a population of 2,500,000 people.

A third branch of the inquiry covers the selection of routes for the proposed canals.

Between Chicago and Summit three lines are practicable—one following the west fork and Ogden ditch, and another extending from the southwestern end of the south fork in a westerly direction to the Ogden ditch, and thence to Summit, and a third being an enlargement of the present canal. We are of the opinion that eventually both the first and second of these lines should be adopted, but that the second one should be built first in order to secure circulation in the south fork. From Summit westward the bed of the river and the present canal were the only lines to be considered. The best location has not yet been finally determined.

For the drainage of the Calumet region a simple inspection shows that a canal should start from the river at the southern point of Blue Island, and extend almost directly westward to the Des Plaines Valley at Sag.

A fourth branch of the inquiry relates to the study of such data as have reference to securing a proper circulation for the waterways within the city.

To throw light upon this point the variations of the lake level have been recorded since last spring by means of an automatic gauge indicating an almost continual fluctuation averaging several inches, and recurring at periods of about twenty minutes. During a low pressure of the atmosphere the amplitude of these oscillations increases, and not unfrequently reaches several feet. The accompanying diagram [a] shows the level of the lake on August 16, 1886, at a time when an area of low barometer passed over it. From 6.40 a.m. to 6.55 a.m.—that is, in fifteen minutes—the water fell 2 feet 10 inches.

A rising level causes an inflow to the river and drives the water of the latter into the slips, where it deposits a portion of its suspended sewage matter and becomes foul. A falling level reverses the flow, and the slips empty their foul water into the river and lake. During heavy fluctuations of the latter such as the one referred to above, it has been traced more than a mile in the direction of the crib.

As the proposed canal from Bowmanville to the lake will lower the water of the North Branch at this point to the lake level, provision must be made for its circulation. The size of the Fullerton avenue conduit is not sufficient to furnish the water required for a current in both directions, nor would such an arrangement be satisfactory or economical. It will be necessary to establish a flow toward the South Branch from the lake opposite Bowmanville in order to prevent a future lake pollution by the proposed channel. This can be accomplished by placing a lock in the North Branch at any point that may be found most desirable and raising the water at the same time about 1 foot. If such a lock is placed at Fullerton avenue the present pumping works, with slight modifications, can be utilized.

Finally, it must be mentioned that circulation can be secured in the proposed waterways of the Calumet region, into which the sewage is discharged, by a gravity flow from Lake Michigan into the Des Plaines Valley through Lake Calumet and the Sag. The detailed features of this project have not yet been wholly matured the estimates of cost being based on a channel having a capacity of 1,000 cubic feet per second.

COMPARISON OF PROJECTS.

In the foregoing we have outlined the main features of the only three feasible methods of disposing of the metropolitan sewage, and have given the results of the investigation reached to date. A general conclusion as to the preferable method may

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a Omitted; printed in House Ex. Doc. No. 264, 51st Cong., 1st sess.

be given at present, and also an approximate estimate of cost. But we are not able as yet to give either conclusions or detailed statements of the probable expense regarding all parts of the proposed work, and must defer them until the final report.

In comparing the projects we will first mention their probable cost and then their relative advantages.

The discharge of the sewage into the lake from a population of 2,500,000 in the manner described above, including the extra expense, otherwise not necessary, of taking the water supply of Grosse Point, would cost at least $37,000,000, with an annual expense for interest and operation of at least $2,400,000. It would require an immediate investment of about $20,000,000.

To dispose of the entire metropolitan sewage by filtration on land would require an investment of about $58,000,000, with an annual expense of over $3,000,000 for interest, pumping and maintenance, after deducting the profit from the sale of crops. It would be necessary to invest at once about $34,000,000. Land disposal for the sewage from the Calumet region alone, with a future population of 300,000, would require an investment of about $4,000,000 and an annual expense of at lease $250,000.

Finally, the cost of the Des Plaines project is approximately estimated as follows:

1. A channel from the South Fork to Joliet of the capacity heretofore given will cost between $17,000,000 and $21,000,000.

2. A diversion of the flood waters of the Des Plaines to the North Branch, and Salt Creek will cost between $2,500,000 and $2,800,000.

3. Pumping works and locks for the North Branch will cost about $150,000.

4. A separate system of sewers to collect the sewage now discharged directly into the lake and to carry it into the river will cost about $600,000.

5. A channel from Lake Calumet to Sag will cost between $2,500,000 and $3,000,000.

6. A diversion of the flood waters of the Calumet river will cost between $350,000 and $400,000.

The total cost of the Des Plaines drainage project would therefore be, for the main district, between $20,250,000 and $24,550,000; for the Calumet district, between $2,850,000 and $3,400,000. The annual cost, including interest, &c., is estimated at about $1,300,000 per annum.

The pollution of the lake can be decreased and the present condition of the Chicago river, and particularly of the South Fork, can be improved by the immediate construction of the following works, which, with the exception of the pumping works at the South Fork discharging into the Illinois and Michigan canal, are all a part of the final plan.

1. Channels diverting the flood waters of the Des Plaines, North Branch, and Salt Creek, as described above.

2. A modification of the Fullerton avenue pumping station and the construction of locks for the purpose of getting circulation in the North Branch.

3. A separate system of sewers to collect the sewage now flowing into the lake from the south division and to discharge it into the South Fork.

4. A waterway extending from the western end of the South Fork to the Illinois and Michigan canal, with a new pumping station to promote circulation.

5. By raising the banks of the canal and by removing deposits this capacity can be increased 40 per cent at a small cost, and thus provide for a greater flow of water in the same.

The cost of the works comprised under these five items is estimated to be between $5,000,000 and $5,500,000. They could be finished in three years, and would greatly lessen the liability of polluting the water supply, while the sewage would be disposed of in the best practicable manner until the final completion of the Des Plaines project.

It therefore appears that this project is decidedly the least expensive one for the present as well as for the future.

Besides the economical advantage of the Des Plaines scheme, its superiority is

still further emphasized by advantages of another kind. The proposed canal will, from its necessary dimensions and its regular discharge, produce a magnificent waterway between Chicago and the Mississippi river, suitable for the navigation of boats having as much as 2,000 tons burden. It will establish an available water power between Lockport and Marseilles fully twice as large as that of the Mississippi river at Minneapolis, which will be of great commercial value to the State. The Calumet region will be much enhanced in value by having a direct navigable channel to the Des Plaines river and by a lowering of the flood heights of Calumet lake and river. Within the city the water of the Chicago river and its South Branch will get a much better circulation if it flows by gravity than if it has to be pumped, the necessity for which would remain even if the sewage should be discharged through intercepting sewers, either into the lake or upon land. Upon either of the latter conditions an occasional overflow from the sewers into the river during heavy rains would be more objectionable than a constant discharge of sewage into a more rapidly flowing stream. Flood waters entering the lake by way of the Chicago river would carry into it much filthy matter, either suspended or deposited, notwithstanding the existence of intercepting sewers, but the proposed diversion of such waters before reaching the populated districts will for all time obviate this undesirable occurrence. Lowering the level of the North Branch at Bowmanville by it diversion to the lake will be equivalent to raising the low prairie extending toward Evanston and Niles and greatly benefit parts of these towns.

THE WATER SUPPLY.

In reaching the conclusion that the sewage of the city should be discharged into the Mississippi Valley the question of water supply is materially simplified, because the lake will then at all times furnish good water wherever intakes are desired for an extension of the works.

The preliminary inquiry made with a view to ascertain the main features of an increased supply comprised, first, a compilation of data concerning the existing works both in Chicago and its suburban towns, which were collected mainly through the courtesy of the respective authorities; and secondly, a study into the most economical method of distributing the water over the metropolitan area. The following is a brief description of the existing works:—

The present intake for the public water supply of Chicago is located in Lake Michigan about 2 miles from shore and the water is conducted to the city in two circular brick tunnels 5 and 7 feet in diameter. They extend parallel to each other under the bed of the lake, and 50 feet apart, to the north pumping works, where they are connected and where the 5-foot tunnel terminates. The 7-foot tunnel is continued under the city for a distance of 20,500 feet, to supply the west works, on Ashland avenue near Twenty-second street.

The tunnels from the source to the shore are built at a depth of 80 feet below city datum, or low water in the lake, and the 7-foot tunnel is continued on the same level for a distance of about 11,500 feet, where, to avoid rock excavation, it is inclined upward until, at the west pumping station, the top is but 21 feet below city datum. The economical capacity of the two tunnels is between 90,000,000 and 100,000,000 gallons per day, or less than the present average daily consumption of water. Their maximum capacity is reached when delivering about 150,000,000 gallons per day, which is now nearly equalled by the demand during the hours of greatest consumption, and at the present rate of increase it is estimated that during the summer of 1887 the maximum demand for water will be at the rate of 145,000,000 gallons per day; during 1888, 150,000,000 gallons per day; during 1889, 167,000,000 gallons per day; and in 1890, 180,000,000 gallons per day.

To provide against accident or obstruction from ice or other cause in the main tunnels, and to provide against an inadequate supply in the near future, which appeared inevitable, a new tunnel is in progress of construction. The intake is located

1,500 feet from shore, and connection is made with the other tunnels at the north pumping works.

The distribution of the water is effected by pumping it directly into the water mains at the north and west stations. At the north works the three tunnels are so arranged and constructed that any one of them can be emptied when desired for repairs or cleaning, and both the pumping stations still be supplied with water from the other tunnels. The total pumping capacity of this station is at present 67,000,000 gallons per day, but it will be increased to 91,000,000 gallons per day as soon as the new pumps now in process of erection are in operation.

The connections between the pumps, standpipes, and the distribution mains at these works have become so complex by the successive additions to the plant that an unnecessary loss of head is the consequence. As this can be remedied to some extent without great expense, we recommend that it be done at the first favourable opportunity. The station being on the shore of the lake, is not centrally located with reference to any part of the city, which renders it necessary to use a greater length of main pipe, with a consequent loss of pressure, to reach the consumers than would otherwise be the case. The total pumping capacity of the west side station is 60,000,000 gallons per day, and the connections between the pumps, standpipes, and mains are simple and effective, and the loss of pressure from this cause is a minimum. The location is better adapted to secure economical and satisfactory results than that of the north works, and with reference to additional pumping stations, which will later be necessary in other parts of the city, these works are well situated.

The following table compiled from the annual reports for 1884 and 1885 gives a detailed comparison of the cost of pumping at two stations, anthracite coal being used at the north side and good bituminous coal at the west side:

COST OF PUMPING 1,000,000 GALLONS 1 FOOT HIGH.

Nature of expenditure.	1884.		1885.	
	North side.	West side.	North side.	West side.
Salaries	$ 0.01488	$ 0.02022	$ 0.01560	$ 0.01667
Fuel	.05313	.02855	.04590	.02482
Lubricants	.00064	.00186	.00057	.00160
Miscellaneous	.00323	.00417	.00133	.00401
Total	.07188	.05480	0.06340	.4710

The hydraulic methods of the system are shown on the diagram of water pressures from a survey made in December, 1886. The pressures have all be reduced to a common height above city datum and to a uniform height of water at the works. That diagram shows a greater loss of head in the vicinity of the north side station than at the west side. This is accounted for by the complex arrangements heretofore mentioned, and also by the relatively small area of mains, being only 16½ square feet at the north side and over 21 square feet at the west side. Nearly equal quantities of water are pumped at each of the stations during the middle of the day.

The following table shows the pumping capacity of all the suburban towns having a public water supply, and the pressure ordinarily maintained at the works. With the exception of South Evanston, all take water from Lake Michigan.

Locality.	Individual pump capacity.		Total pumping capacity per day.	Ordinary head at pump, in feet.
	Pumps.	Capacity per day.		
		Gallons.		
Hyde Park	2	3,000,000	.....	.....
Hyde Park	1	12,000,000	18,000,000	103 to 150
Lake	2	4,000,000	.....	.....
Lake	2	2,000,000	12,000,000	100 to 190
Lake View	1	5,000,000	.....	.....
Lake View	1	3,000,000	10,000,000	92
Lake View	1	2,000,000	.....	92
Village of Evanston	1	3,000,000	3,000,000	92
Total	11	.....	43,000,000	.....

At the artesian well supplying the village of South Evanston there is a head of about 53 feet.

The pressure at different parts of the pipe system is very irregular. In Hyde Park it varies from 165 feet at the pumps to 10 or 12 feet at Forty-third street. In the town of Lake the average head at the town hall is reported about 10 feet, with 188 feet at the pumps. In Evanston, South Evanston, and Lake View the difference of head in various parts of the villages is not very great (*a*).

The following table gives a comparison of the consumption and cost of water in Chicago and the suburban towns:—

Locality.	Year.	Average head at pumps.	Average daily pumpage.	Cost per 1,000,000 gallons delivered.	Cost of pumpin 1,000,00 gallons 1 foot high.
Chicago (North side)	1885	113	38,369,134	$ 7 17	$0.06034
Chicago (West side)	1885	105	58,280,880	4 95	.04071
Evanston (village)	1886	113	787,000	17 00	.15000
Lake View	1886	.....	1,983,000	11 85	.....
Town of Lake	1886	163	7,292,023	8 80	.05400
Hyde Park	1886	.....	3,410,000	8.92	.....

The second point of inquiry was a study into the most economical method of distributing the water over the metropolitan area. We will at present refer to it but very briefly, mentioning only such conclusions as pertain to the immediate demands and leaving a fuller discussion of the details of this important question to the final report.

The comparatively level area upon which the city is located, and the practicability of taking the water from the lake along the city front at any desired point, after the sewage has been diverted, permits the most economical distribution to be ascertained by mathematical investigation to a much greater degree of exactness than is usually possible.

It is found to be less expensive for the densely populated areas to have pumping stations about 2 or 3 miles apart, because the loss of head and cost of mains and pumping to obtain the least allowable pressure are thus reduced to a minimum. In planning new works this fact should be considered, and locations so selected that they will be advantageous for the future as well as for the present.

The localities which we believe to be most suitable for additional pumping stations are near Twelfth street, in the central part of the city; near the Union Stock Yards; near Humboldt Park, and near Fullerton and Racine avenues.

When it is considered that at the present time the pumps are delivering during the busy part of the day at the rate of 120,000,000 gallons in twenty-four hours, which

a Here appears a "diagram showing water pressure in the Chicago water pipes." Not here reproduced.

is nearly the maximum capacity of all the machinery, and that even with this large consumption of water it is impossible in some parts of the city to obtain water in the second story of the buildings, it becomes evident that an increased supply is imperatively required, and being a work of years to build new tunnels, inlets, buildings, and machinery, the necessity of deciding upon the location of the new works as soon as possible is readily seen. The locality which is suffering most from the want of water is the business section and the south part of the city, the lowest pressure extending from Twelfth street to the city limits. It will become necessary in the future to have two stations in this territory, one between Harrison and Twelfth streets and the other to be somewhere east of the Union Stock Yards. We are strongly of the opinion that of the two stations it will be advisable and most advantageous to build the one north of Twelfth street first, for the following reasons:

1. It will require a shorter tunnel from the lake to the proposed station and less expenditure for main discharge pipes to connect with the present system than would be the case with the proposed southern station. This is equivalent to less cost and a saving of time in construction.

2. If the southern station is built first it will require mains of larger capacity leading toward the city than will be ultimately necessary when the central station is built.

3. The location recommended is near the centre of the greatest consumption of water, and will be a gain not only in obtaining greater pressure in the business district, but in removing the cause for complaint on the south side by increasing the pressure so that the water will flow to the upper floors of the highest dwellings.

4. All other parts of the city will gain by the construction in this location, as the north and west works will be relieved of the enormous drain upon them to supply water for the business part of the city. They will be better able to give a good head on the north and west sides, where the population is increasing very rapidly, and which will very soon be in the same unsatisfactory condition as now obtains in the southern end of the city, unless relief is afforded in the manner indicated.

The other pumping stations will gradually become necessary as the population increases, and for a population of 2,500,000 there will be a need for a total combined capacity of 375,000,000 gallons to provide for a daily consumption of 150 gallons per head. With several intakes and tunnels the danger from stoppage of the water supply by ice or accident will be reduced to a minimum, as it is not probable that more than one of them would be so endangered at the same time.

We believe that a submerged intake will afford a more reliable and safer structure so far as injury from passing vessels and stoppage by ice are concerned than a structure projecting above the water.

With the sewage kept out of the lake there is no need of locating the intake farther than 2 miles from the shore, where water can be obtained sufficiently free from suspended earthy matter, and where a depth of about 30 feet is generally found, which is the least depth desirable for a submerged inlet.

After presenting the results thus far gained, indicating the general solution of the Chicago drainage and water-supply problem, it remains to point out certain facts which may be useful in discussing some of the legal measures required to carry out the proposed work. We desire to state that in order to reach the best results it is imperative to have all the main drainage works, such as intercepting sewers, waterways, and pumping stations, executed and maintained under a single management. It would be economical also to design and operate the main works of supplying water to the entire metropolitan area on a uniform plan and under one management, for the same reason that it is economical to keep the north and west side pumping works under one control, thus giving facilities as far as practicable for a supply proportioned to the demand to the entire metropolitan area, including the towns not bordering on the lake. We do not wish to imply, however, that such a general authority need necessarily extend further than to the construction and maintenance of the tunnels and conduits furnishing water to the respective pumping works.

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Regarding the limits for metropolitan drainage, the investigation has shown, as already indicated, that topographical conditions clearly define two districts for the future metropolis. The main district extends from the line of Eighty-seventh street on the south to the north line of Evanston and from the lake westward to the Des Plaines river. Its sewage is collected into one channel and discharged into the Des Plaines valley at Summit. The Calumet district extends over the natural drainage area of Calumet lake and river south of Eighty-seventh street, and has its outfall channel running from Blue Island to Sag.

The final report will contain several maps, showing certain features of the metropolitan area, namely, the distribution of the population in 1886, the existing works and main distribution pipes for water supply, and the existing main sewerage works and 5-feet contour lines over nearly the entire area. It will also contain maps and profiles of the proposed waterways and storm-water-diversion channels mentioned in the present report, and a map showing the lines of the main collecting and intercepting sewers of the proposed drainage districts, and also the lines of new tunnels and the general distribution of the water supply.

In carrying on the present investigation its various branches are placed in charge of the following gentlemen, of whose ability and industry we desire to make special mention: Mr. L. E. Cooley, principal assistant, had special charge of the hydrographic work; Mr. Charles H. Swan, of the sewage disposal on land; Mr. Francis Murphy, of the topographical work;) Mr. O. Guthrie, of the river pollution, land damages, etc., and Mr. T. T. Johnson, of the water supply, sewerage, and miscellaneous work.

Respectfully submitted.

RUDOLPH HERING,
Chief Engineer.

BENEZETT WILLIAMS,
SAMUEL G. ARMINGSTALL,
Consulting Engineers.

APPENDIX B.

CHICAGO, June 29, 1906.

DEAR GENERAL.—On May 28 I replied at length to your inquiries of May 26 concerning the final report of the drainage and water supply commission and the disposition of the materials which had been collected. Under date of May 31 you now ask for—

'The sanitary authority upon which rests the requirement of the Illinois State law that 20,000 cubic feet per minute must be diverted into the Chicago Drainage Canal for every 100,000 inhabitants.'

And again—

'How much water is really required to dilute the sewage?'

The proper answer to your questions involves a review of the considerations which determines the ratio of dilution in the sanitary district law and the justification for the same. I have therefore delayed this answer in order to consult original documents and memoranda. I have not undertaken to refer exhaustively to my records, as I am pressed for time, and my memory is entirely clear upon the essential facts.

The essence of the law is contained in section 20 and 23 of 'An Act to create sanitary districts and to remove obstructions in the Des Plaines and Illinois rivers' (passed May 29, 1889, in force July 1, 1889). Section 20 states: 'Any channel or outlet * * * shall be of sufficient size and capacity to produce a continuous flow of water of at least 200 cubic feet per minute for each 1,000 of the population of the district drained thereby, and the same shall be kept and maintained of such size and in such condition that the water thereof will be neither offensive or injurious to the health of the people in this state.' Section 23 states: 'Such channel shall be made and kept of such size and in such condition that it will produce and maintain at

all times a continuous flow of not less than 20,000 cubic feet of water per minute for each 100,000 of the population of such district.'

Section 23 states further : 'Such channel shall be constructed of sufficient size and capacity to produce and maintain at all times a continuous flow of not less than 300,000 cubic feet of water per minute, * * * and if any portion of any such channel shall be cut through a territory with a rocky stratum * * * such portion of said channel shall have double the flowing capacity above provided for.'

You will see that the law insists on a sanitary condition, and that the flow of water shall be continuous (at all times), and that the minimum dilution shall be (not less than) 20,000 cubic feet of water per minute for each 100,000 people. This indicates that the general assembly did not regard the ratio of dilution as a positive determination, and this accords with the facts. You will note further that the channel was to be cut through the rock with a minimum capacity of 600,000 cubic feet per minute, and that the channel in the clay was to be subject to progressive enlargement from a capacity of 300,000 cubic feet per minute with the growth of population above 1,500,000.

As a matter of fact, the rocky stratum extended from Lockport to Summit, and the channel was actually constructed of the larger capacity, leaving only 7·76 miles between Summit and the waters of the Chicago river for future enlargement. When the district was opened, January 17, 1900, the population of the district exceeded 1,500,000 and was, in fact, 1,637,972 by the federal census of 1900. By Act of the general assembly in 1903 the district was enlarged, and the population by census, within the new boundaries was 1,775,596.

I had everything to do in determining the prime essentials of the sanitary district law above quoted. I projected the work in its substantial outlines in a report which I drafted for the committee of the Citizens' Association in September, 1885. (Ossion Guthrie, Dr. Frank Reilly, and Lyman E. Cooley were a subcommittee to examine the situation and report.) As chief assistant to the Drainage and Water Supply Commission in 1886-87, I had charge, among other things, of the canal solution. I was consulting engineer to the State Board of Health in 1887-1889, and again in 1891, while its elaborate chemical investigation of the stream between Lake Michigan and St. Louis was under way. I was consulting engineer to the joint committee of the legislature (Mayor of Chicago, ex-officio, chairman) that framed the sanitary district Act, and as such determined the features of the law referred to. I later represented before the general assembly the several organizations of Chicago which were engaged in promoting legislation.

The state of our information in 1887 in regard to dilution and the capacity of channel required is discussed at some length in my testimony of April 7, 1887, before the joint committee of the general assembly. A few hundred copies of this were printed, but I do not know where an extra copy is to be had. I refer to this especially because it is the only published matter of that period after the preliminary report. I will also refer you to an elaborate paper which discusses the subject-matter, read on June 10, 1896, before the National Conference of State Boards of Health at Chicago. This was published by the secretary at Columbus, Ohio, and is hard to get. There were, of course, many fugitive and fragmentary discussions not considered worthy of preservation.

You will note in the preliminary report and in later testimony, that the Drainage and Water Supply Commission refers to a dilution of 24,000 cubic feet per minute as ample for a sanitary condition, and I believe that Mr. Hering, the chief of that commission, has stated that was his personal view of the requirements. As a matter of fact, the capacity of the channel was fixed at that time at 600,000 feet as required to remove the flood water from some 420 square miles of territory (after the diversion of the upper Des Plaines river), and prevent the same from backing into the lake. The basis of population used in considering land disposal and other alternative solutions proposed was 2,500,000, and this figure was applied to the proposed channel capacity,

giving the ratio of 24,000 cubic feet per minute for each 100,000 people as above stated. At that time only preliminary consideration had been given to the question of dilution, as the chief force of the investigation had been applied to other alternative solutions.

I think it is also in evidence before the joint committee of the general assembly in 1887, by Doctor Rauch, secretary of the State Board of Health, that 14,000 cubic feet per minute would be sufficient. Doctor Rauch had undertaken an investigation of the subject preliminary to the elaborate studies of 1888-89. After the adjournment of the legislature and the failure of the Hurd Bill in 1887, little further attention was given to the matter until it was taken up by the special committee appointed to frame a law and report to the next general assembly.

This committee had several hearings, and developed much diversity of opinion. Personal opinions ranged from 14,000 feet per minute to 30,000 feet, and some wished to leave the matter entirely open. As no agreement could be reached, the whole subject was referred to the Consulting Engineer late in 1888, and after a painstaking investigation, he reported, and the results were embodied in the draft of the Bill and subsequently became law.

The data available are referred to as follows :—

'Special investigations of the filth-producing industries of Chicago, and an elaborate investigation of the Chicago river and branches in the autumn of 1886, and after the flood of 1887, also the Illinois and Michigan canal ; a careful investigation of the history and condition of sewage in the Des Plaines and Illinois rivers for the fifteen years prior to 1887, between Joliet and La Salle ; the chemical investigations by the State Board of Health, over the route from Lake Michigan to the city of St. Louis, and of tributary streams, and a special investigation of the conditions produced by the distillers at Peoria and Pekin.'

The above data were probably more ample than had ever been brought before to the consideration of a similar problem. In addition, there were the following documents : Reports on the condition of the Seine at and below Paris; reports on the sewage-disposal works at Berlin, then being inaugurated; three reports by parliamentary commissions on river pollution in Great Britain ; reports on pollution of streams by the State Board of Health of Massachusetts; reports by Doctor Chandler on the pollution of the Passaic river, New Jersey.

In addition, the consulting engineer had made special notes on the low water condition of the Ohio river and of the Upper Mississippi river, and on several other streams, in comparison with population.

The general result arrived at was that 14,000 cubic feet per minute would be adequate for a normal city population such as usually obtained in New England and in Europe, but that this ratio should be increased about 50 per cent on account of the special industries characteristic of Chicago and the quality of her site—flat topography, with impermeable subsoil. At that time—and we still have great industries based on animal and other organic products—the wastes coming from the stock yards and rendering establishments alone were estimated as the sewage equivalent of a normal city of 700,000 people. Every effort had been made, and is still being made, to utilize these organic wastes, and great progress had been made in the previous twenty years, but nevertheless it was thought wise to provide sufficiently for all conditions rather than subject any industry to special burdens. These considerations raised the dilution ratio to 20,000 cubic feet per minute as a minimum, and it was so recommended.

At that time we had distilleries in Chicago which were serious offenders, but they have since closed down. I examined the distilleries at Peoria in 1891, when 40,000 head of cattle were fed on the slops, and I found that the fish were destroyed for 24 miles down the river in the lower water season. It was noted that the conditions were worse when the raw slops were run directly into the river, as the cattle were not then

present to reduce the decomposition by several stages. In this industry I understand that these wastes are now evaporated and pressed into cake and sold for stock food.

In the rendering business there is a highly concentrated effluent from the tanks, which would resemble consommé soup if it were filtered and deodorized, and this has defied all chemical science for its salvation. Hopes were entertained of converting it into commercial ammonia by destructive distillation, but this did not prove practicable on a commercial scale. I believe that sometime these valuable wastes will be commercially utilized, and when this is done a great burden will be taken off the Chicago Drainage Canal. It seemed to be that if it was not possible to make an economic use of these concentrated effluents, the profitable disposal of household sewage with the enormous volumes of water used in American cities was absolutely hopeless. At that time the sentiment of sanitarians was very strongly against what we proposed as a barbarism. The experience of nearly twenty years since has fully borne out the non-economic character of sewage-disposal works, and the Chicago solution has come to be accepted as rational where the conditions permit.

I was not satisfied with our data in regard to the stock-yards district, and when chief engineer of the sanitary district in 1890 I undertook a special chemical investigation, continued over a period of time, of every outfall entering the South Fork. The work was completed, but I ceased to be chief engineer before the results were fully worked out. At the same time I made a continued series of chemical analyses of the Illinois and Michigan canal, which was then being operated to a capacity of over 50,000 cubic feet per minute. These investigations cost some $6,000. I became satisfied that I had not overestimated the special source of filth. It was my intention to carry the inquiry over the entire city and do what had never been done before—ascertain the sewage of a great municipality as a whole. If I had had my way in the matter we would have had more positive data as to the sewage equivalent and the volume of Lake Michigan water required. Our boards of trustees have not since encouraged the resumption of any such work, and indeed it has been regarded as needless by those in authority after the sanitary-district law had been passed and the work actually entered upon.

No extended investigations were again undertaken until the biological and chemical examinations of 1899 and 1900 were made by the co-operation of the health department of the city of Chicago, the Chicago University, and the University of Illinois.

This investigation was instigated by Dr. Frank W. Reilly, then and now assistant health commissioner of Chicago, after consultation with the writer. Doctor Reilly was Assistant Secretary of the State board of health during the investigations of 1881-1885, and in 1886 collated the results of Prof. J. H. Long's chemical examinations of the contents of the Illinois and Michigan canal and of the Illinois river and its tributaries as far south as Peoria. These examinations were projected by Dr. J. H. Rauch, Secretary of the State board, and were directly supervised by Doctor Reilly. His study and collation of Professor Long's analyses demonstrated that all traces of Chicago sewage pollution disappeared in a flow of 48 miles from its source—that is, between Bridgeport at the entrance of the Illinois and Michigan canal and the town of Channahon on the Des Plaines river, after this stream had received the discharge from the canal. This demonstration completely upset the time-honoured dictum of previous water analyses 'that no river on earth is long enough to purify itself after it has become contaminated with organic wastes.' Six years later, in 1892, Pottenkofer fully corroborated Doctor Reilly's demonstration.

Doctor Reilly and myself were associated in all the early promotion of the sanitary project, and he is the only person that I know upon whom you can call for a history of the subject-matter of this letter.

The biological examinations were entirely confirmatory of the results of the investigations of 1888-89, but have the merit of less confusion in interpretation. The State board of health has since recompiled and extended the results of its steam examinations and published a report in 1903. The University of Illinois has been making

for several years past a biological investigation of the waters of the Illinois river, but with no special reference to the matters under consideration. I do not refer to data of an ex parte character gathered in the Chicago-St. Louis suit recently decided by the United States Supreme Court.

None of this later material nor the added experience and reflection of nearly twenty years has changed my mind in regard to the ratio of dilution as given in 1888 and incorporated in the sanitary district law. I do not think I could make a better determination at this time. I feel bound to say, however, that we have not yet had the final demonstration of experience. We shall not positively know until the intercepting sewer system is completed and in operation, the South Fork in active circulation, and also the North Branch, so that the canal receives the entire output of the city north of Eighty-seventh street in a comparatively fresh condition. I have been apprehensive that these contributions would be made before the Chicago river is sufficiently improved to furnish the necessary volume of water to promptly dilute the same. The analyses show a higher ratio per capita for chlorine and nitrogen, but this was anticipated. They also show a large proportion down the old canal, which, owing to the situation of its inlet, receives largely the output of the South Fork, but this was also anticipated. The evidence as to chlorine is to be taken with caution on account of the large use of salt in many of our industries, but the indications are that Chicago sewage may be even richer than I had presumed in comparison with the sewage of normal cities. I have no forebodings, however, other than as to the policy which may be pursued by the authorities of the sanitary district. Based on the advice of the consulting engineer the law is abundantly cautious in stating the ratio of dilution and the capacity of channel as minimums, and in insisting on a continuous flow, but unhappily there has been a disposition in many quarters to interpret these minimum requirements as maximums.

You will find in the testimony of 1887 and the paper before the National Conference of State Boards of Health in 1896, persistant reference to the necessity of maintaining the flow in the winter time. The investigations show clearly that the sewage travels farther down the stream in the winter season and is more dangerous to fish life when the oxygen cannot be renewed owing to an ice cover. The necessity for dilution is then paramount. In the original studies of an economic channel, made under my direction, first by William A. Lydon in 1886-87, and later by Thomas T. Johnston in 1890-91, the carrying capacity of a channel covered by ice was fully considered. On the present channel the capacity will be reduced by nearly 40 per cent, or to something over 60 per cent of the capacity of an open channel.

In making the studies for the main channel we adopted the most conservative coefficients. The channel depth was made nominally 22 feet, with an allowance of over 2 feet for fall between the lake and the head of the channel at Robey street, but it was understood that any proper improvement of the Chicago river and by other inlets would give a depth of 24 feet or more. The channel itself was made of better character than originally anticipated, owing to the use of the channeling machine. The effect has been to give a channel of nearly 40 per cent greater capacity than the minimum stated in the law. It was my hope and intention to produce a channel 30 feet deep, with a capacity of 1,000,000 feet, but I was not able to reach farther than I have stated.

Under the original theory the channel is not sufficient even now to carry 600,000 feet of water per minute under an ice cover. It has been ingeniously answered that this objection could be removed by the use of ice-boats, but I have a mental resistance to all solutions of sanitary problems that are not automatic in action, for sooner or later they go awry, to the prejudice of the public health.

It is fair to say, however, that thus far little ice has formed upon the main channel and that the flow has been little interfered with from this cause. This has been attributed to the large volumes of warm water from households and from manufacturing plants, and it is supposed also that active sewage decomposition may have something to do with it, and, further, that a surface film of oleaginous matter may afford some protection. Perhaps these explanations are after the facts, and therefore speculative.

Whatever may be the cause, the effects should be relatively less when the channel shall be carrying the full volume. And, again, the grand law of average will give us more severe winters than we have been having since the channel was opened.

The estimates of the carrying capacity of the main channel are based as follows (report of expert commission; see proceedings of board of trustees of sanitary district, June 19, 1901, p. 7248):

'Within the past two weeks the results of special observations made since this commission was organized, and other relevant data, has enabled an approximate determination of coefficients by which to determine the capacity of the main channel under the conditions specified. To determine these matters finally, however, requires a special set of observations under better weather conditions and with the canal operated for this purpose.'

The expert commission of 1901 estimated the capacity of the channel on a depth of 24·4 feet at Willow Springs, at 836,280 cubic feet per minute, in conjunction with a radical improvement of the Chicago river such as would furnish the entire supply of water without detriment to navigation. The same commission estimated the capacity on a depth of 24·2 feet at Willow Springs, at 827,040 cubic feet per minute in conjunction with a moderate improvement of the Chicago river north of Sixteenth street and an inlet direct to the lake adjacent to Sixteenth street on the south. In both cases the lake was assumed at Chicago datum, or low water of 1847. Both of these treatments were in harmony with the theory of the law and the original project.

The sanitary district has adopted, at least for the present, a channel through the Chicago river 200 feet wide, which the expert commission estimated would carry 390,000 feet of water per minute without detriment to navigation. I understand that it is expected to feed to the channel 600,000 feet through the Chicago river and the Thirty-ninth street conduit, and that one-fifth of this is to come by way of the conduit and the South Fork. I understand further that it is proposed to construct a channel from the Calumet region through the Sag, with a capacity of some 240,000 feet of water per minute. The total is 840,000 per minute, or the 14,000 feet per second which has been mentioned in the hearings at Washington and before your commission.

You will note in the testimony of 1887 that the consideration which originally fixed the channel at a capacity of 600,000 cubic feet per minute, was the flood volume from an area of 420 square miles. Assuming the channel to have a capacity of 840,000 cubic feet per minute, the flood equivalent would represent a territory of not over 700 square miles. To add more territory is sure to result at some time in the backing of the waters into the lake. Sewage pollution is to be regarded as most dangerous when the sewage is carried out in a fresh condition during floods and when the city is virtually taking a bath, and it was such eruptions of flood waters from the populated area which the drainage and water supply commission sought particularly to avoid.

I am therefore strenuously opposed to all propositions which propose to add unlimited territory to the present channel, and which propose in any manner to sacrifice part of its capacity in the carrying of floods from upland and rural territory. All the great filth-producing industries and the great population is now tributary, and will so remain, to the Chicago river, its branches, and the main channel; and I do not think that the provision which has been made for this territory is more ample than should have been provided for a reasonable future growth. The capacity on the present scale of minimum dilution, presuming it to be sufficient, is the equivalent of a population of 4,200,000. This may not actually be realized, but I feet sure that the progressive saving of wastes will eventually reduce the per capita output of sewage to more nearly the normal for other cities. We know that such utilization has already taken place in connection with the distilleries. We also have the police power, and can compel the care of specific sources of nuisance when necessity requires; but as already remarked, such a policy in connection with our great industries has not been considered wise.

I anticipate, therefore, that as conditions develop in the future, the channel may

prove sufficient for five or six millions of people, provided the original plans can be carried out in their integrity. That means, however, that the capacity of the main channel shall be reserved substantially (and it has been planned and constructed on that idea) for the territory of the original district, and that only such provision shall be made for outlying territory as the actual necessities of its people require. If we study the relative growth of population and the character of the industrial development in such outlying territories, we shall be persuaded that such a policy will do no injustice and will conserve the sanitary purpose in the highest degree.

What is to be the future population of Chicago, no man can foresee. I think we may rest for the present on an assumption of five to six million people. In laying out the main channel its tangents were made parallel to and at a fixed distance from the Illinois and Michigan canal where the same was possible. The idea under this location was that the old canal would maintain the reservation for future use, and that the time might come when another canal alongside would be desirable. My thought in this matter was not so much an ultimate thought on the sanitary question as it was that we might wish to carry more water to the Illinois river in the interest of deeper navigation. If any such proposition is considered beyond the provision which has already been made, the whole continent should join, and we may dismiss it from present consideration. I do believe, however, that the time will come when public opinion on this continent will be sufficiently broad to make the best use possible of the waters of the Great Lakes, in the interest of the deepest possible navigation from the Gulf of St. Lawrence to the Gulf of Mexico, and I do believe that the project which Chicago has so happily inaugurated as the incident of a sanitary necessity, which will came to be looked upon as a monumental foresight.

I think I have covered the subject-matters of your inquiry. If you wish the documents which I have especially referred to, I will loan them to you, as I do not know where duplicates are to be had.

Yours very respectfully,

LYMAN E. COOLEY.

General O. H. Ernest,

Chairman of American Section

International Waterways Commission, Washington, D.C.

APPENDIX C.

Summary of net receipts and expenditures, sanitary district of Chicago, from organization to December 31, 1905.

Receipts.

Taxes collected for general purposes	$30,712,708 65	
Taxes collected for water-power development	2,014,730 57	
		$32,727,439 22
Bond account (bonds outstanding)—		
First issue	$ 700,000 00	
Second issue	1,200,000 00	
Third issue	1,350,000 00	
Fourth issue	1,800,000 00	
Fifth issue	400,000 00	
Sixth issue	440,000 00	
Seventh issue	200,000 00	

Eighth issue	190,000 00	
Ninth issue	700,000 00	
Tenth issue	750,000 00	
Eleventh issue	1,875,000 00	
Twelfth issue	1,600,000 00	
Thirteenth issue	1,275,000 00	
Fourteenth issue	1,350,000 00	
Fifteenth issue	1,350,000 00	
Sixteenth issue	2,000,000 00	
		17,180,000 00
Interest on bank balances		362,785 73
Tax levy, 1896 (warrants outstanding)		5,212 91
Dock and land improvement and rental account (rent of land)		40,123 78
American Crushed Stone Company		1,000 00
Western Stone Company		3,278 00
Total receipts		50,319,839 64

Expenditures.

Right of way		$ 6,983,944 14
River diversion construction	$ 1,000,186 38	
Bridge construction, river diversion	142,486 20	
Main channel construction	18,547,408 95	
Bridge construction, main channel	1,978,536 38	
Controlling works, Lockport	331,253 65	
Bridge construction, controlling works	7,873 35	
Joliet project	1,309,063 46	
Bridge construction, Joliet project	271,351 16	
Chicago river, dredging, docking, &c.	2,027,221 78	
Bridge construction, Chicago river	2,498,383 03	
Illinois and Michigan canal improvement at Bridgeport	77,016 08	
Thirty-ninth street pumping station	211,604 85	
Improvement of Kampsville and La Grange dams	16,920 27	
Raising roadway of Brandon's bridge	5,882 68	
		28,425,188 22
Water-power development	$ 1,346,085 92	
Bridge construction, water-power development	112,362 44	
		$ 1,458,448 36
Capitalization and maintenance of bridges	403,354 60	
Maintenance of highway bridge	12,613 89	
Maintenance account	164,775 95	
		580,744 44
Interest on bonds	6,821,647 58	
Interest on tax warrants	468,453 69	
		7,290,101 27
Taxes on land—		
Cook county	3,248 19	
Dupage county	1,209 07	
Will county	27,310 28	
		31,767 54

Engineering department	2,064,007 21	
Engineering department, water-power development	97,778 20	
Clerical department	173,361 87	
Law department	1,031,154 12	
Treasury department	41,832 39	
Police department	400,160 69	
General account	867,944 19	
		4,685,238 67
City of Chicago		14,079 20
Land damages		76,331 84
Marine damages		9,647 32
Personal injuries account		4,087 50
Bridgeport pumping works		90,388 80
Special commission, Chicago Drainage canal		33,075 97
Telephone line		12,292 13
Telephone line repair account		104 00
Weir, McKechney & Co		22,118 14
E. D. Smith & Co		2,400 00
Total expenditures		49,719,957 54
Emergency funds in hands of department officials	$ 10,400 00	
Due from F. M. Blount, treasurer (deposit in National Bank of Illinois)	22,043 48	
Due from John J. Hanberg, county collector	45,727 38	
Due from collector, town of Niles	1,660 32	
Balance in hands of C. L. Hutchinson, treasurer, December 31, 1905	520,050 92	
		599,882 10
		50,319,839 64

APPENDIX D.

[Permit of July 3, 1896.]

4554.] IMPROVEMENT OF CHICAGO RIVER.

July 3, 1896.

SIR,—I have the honour to acknowledge the receipt of your letter of 16th ultimo, requesting permission to make certain changes in the capacity of the channel of the Chicago river for drainage purposes at points indicated on the map accompanying the application, and in reply beg to say that upon investigation it is found that the permission requested can be granted upon the following conditions :—

1. That while the general plan is approved, the sanitary district of Chicago must furnish plans in triplicate on an enlarged scale showing each proposed new bridge, each by-pass, and each new dock or wharf proposed to be built, in order that the Secretary of War may act intelligently in each case.

2. That this authority shall not be interpreted as approval of the plans of the sanitary district of Chicago to introduce a current into Chicago river. This latter proposition must hereafter be submitted for consideration.

3. That it will not cover obstructions to navigation by reason of this work while in progress or when completed.

4. That the United States shall not be put to expense by reason of this work.

5. That this authority will expire by limitation in two years from date unless extended.

Very respectfully,

JOSEPH B. DOE,

Acting Secretary of War.

B. A. ECKHART, Esq.,

President the Sanitary District of Chicago, Rialto Building, Chicago, Ill.

[Permit of May 8, 1899.]

Whereas, by section 10 of an Act of Congress, approved March 3, 1899, entitled 'An Act making appropriations for the construction, repair, and preservation of certain public works on rivers and harbours, and for other purposes,' it is provided that it shall not be lawful to alter or modify the course, location, condition, or capacity of the channel of any navigable water of the United States unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of War prior to beginning the same ;

And whereas the sanitary district of Chicago, a municipal corporation organized under the laws of the state of Illinois, has constructed an artificial channel from Robey street, Chicago, to Lockport, and has heretofore been granted permission by the Secretary of War to make certain improvements in the Chicago river for the purpose of correcting and regulating the cross section of the river so as to secure a flowage capacity of 300,000 cubic feet per minute with a velocity of 1¼ miles an hour, it being intended to connect the said artificial channel with the west fork of the South Branch of Chicago river at Robey street in the said city of Chicago ;

And whereas the said sanitary district of Chicago has now applied to the Secretary of War for permission to divert the waters of the said Chicago river and cause them to flow into the said artificial channel at Robey street, as aforesaid ;

And whereas the said sanitary district of Chicago represents that such movable dams and sluice gates as are necessary to at all times secure absolute and complete control of the volume and velocity of flow through the Chicago river have been constructed ;

Now, therefore, the Chief of Engineers having consented thereto, this is to certify that the Secretary of War hereby gives permission to the said sanitary district of Chicago to open the channel constructed and cause the waters of Chicago river to flow inio the same, subject to the following conditions :

1. That it be distinctly understood that it is the intention of the Secretary of War to submit the questions connected with the work of the sanitary district of Chicago to Congress for consideration and final action, and that this permit shall be subject to such action as may be taken by Congress.

2. That if, at any time, it become apparent that the current created by such drainage works in the south and main branches of Chicago river be unreasonably obstructive to navigation or injurious to property, the Secretary of War reserves the right to close said discharge through said channel or to modify it to such extent as may be demanded by navigation and property interests along said Chicago river and its south branch.

3. That the sanitary district of Chicago must assume all responsibility for dam-

ages to property and navigation interests by reason of the introduction of a current in Chicago river.

Witness my hand this 8th day of May, 1899.

[SEAL.]

R. A. ALGER,
Secretary of War.

JOHN M. WILSON,
Brigadier-General, Chief of Engineers, U.S. Army.

[Permit of April 9, 1901.]

Whereas, under date of May 8, 1899, the Secretary of War granted permission unto the sanitary district of Chicago to open the artificial channel from Robey street, Chicago, to Lockport, and cause the waters of Chicago river to flow into the same, upon the following conditions, *inter alia* :

'2. That if, at any time, it become apparent that the current created by such drainage works in the south and main branches of Chicago river be unreasonably obstructive to navigation or injurious to property, the Secretary of War reserves the right to close said discharge through said channel or to modify it to such extent as may be demanded by navigation and property interests along said Chicago river and its south branch ;'

And whereas it is alleged by various commercial and navigation interests that the present discharge from the river into the drainage canal sometimes exceeds 300,000 cubic feet per minute, causing a velocity of nearly 3 miles per hour, which greatly endangers navigation in the present condition of the river ;

Now, therefore, this is to certify that the Secretary of War, upon the recommendation of the Chief of Engineers, hereby directs said sanitary district to regulate the discharge from the river into the drainage canal so that the maximum flow through the Chicago river and its south branch shall not exceed 200,000 cubic feet per minute.

Witness my hand this 9th day of April, 1901.

[SEAL.]

ELIHU ROOT,
Secretary of War.

[Permit of July 23, 1901.]

THE SANITARY DISTRICT OF CHICAGO,
SECURITY BUILDING,
CHICAGO, July, 15, 1901.

SIR,—I have the honour to request, on behalf of the sanitary district of Chicago, that your order of April 9, 1901, restricting the flow of water through the Chicago river to 200,000 cubic feet of water per minute, may be so amended as to permit the controlling works at Lockport, the outlet of the main drainage channel, to be so regulated as to permit at that point a flow of 300,000 cubic feet of water per minute between the hours of 4 p.m. and 12 o'clock midnight.

The board of trustees of the sanitary district have rigidly observed the restrictions of your order of April 9, 1901, but the result has been that the water in the main drainage channel has become greatly polluted and very offensive both to sight and smell, and is working such hardship upon the valley communities as to evoke frequent protests from various cities and municipalities along the Des Planes and Illinois valleys.

By such a modification of your restricting order as is herein petitioned, it would be possible for the sanitary district to secure much better drainage of the city of Chicago and the purification of the waters of the Chicago river without any hardship or inconvenience whatever to the interests of navigation, as the opening of the controlling works to a flow of 300,000 cubic feet of water per minute would produce no appreciable effect upon the current of the Chicago river until three hours thereafter and would not produce the full effect until about eight hours after the opening of the gates. Therefore, by again diminishing the flow at midnight to the requirements of your order, or to 200,000 cubic feet of water per minute, the normal condition in the Chicago river would be restored before 6 a.m. on the following day and thus no hardship or inconvenience occasioned to the navigation interests of the Chicago river.

I have the honour to be, very respectfully, yours,

ALEX. J. JONES,
President.

To the Hon. ELIHU ROOT,
Secretary of War, Washington, D.C.

[Second indorsement.]

OFFICE, CHIEF OF ENGINEERS, U.S. ARMY,
July 22, 1901.

Respectfully returned to the Secretary of War.

By an instrument, dated April 9, 1901, the Secretary of War directed the sanitary district of Chicago to regulate the discharge from the Chicago river into the drainage canal so that the maximum flow through the Chicago river and its south branch shall not exceed 200,000 feet per minute.

The sanitary district now asks that this order be so amended as to permit an increase of the flow into the canal to 300,000 cubic feet per minute between 4 p.m. and 12 midnight, daily.

It is the opinion of Major Willard, expressed in the accompanying letter of the 16th instant, that the request should be granted subject to revocation by the Secretary of War in case the increase be found dangerous to navigation.

I concur in this opinion aand recommend that the order of April 9, 1901, be modified accordingly.

G. L. GILLESPIE,
Brigadier-General, Chief of Engineers, U.S. Army.

[Third indorsement.]

WAR DEPARTMENT,
July 23, 1901.

Approved as recommended by the Chief of Engineers.

E. ROOT,
Secretary of War.

[Permit of December 5, 1901.]

Whereas, under date of May 8, 1899, the Secretary of War granted permission unto the sanitary district of Chicago to open the artificial channel from Robey street, Chicago, to Lockport, and cause the waters of Chicago river to flow into the same, upon the following condition, *inter alia* :

'2. That if at any time it becomes apparent that the current created by such drainage work in the south and main branches of Chicago river be unreasonably obstructive to navigation or injurious to property, the Secretary of War reserves the right to close said discharge through said channel or to modify it to such extent as may be demanded by navigation and property interests along said Chicago river and its south branch.'

And whereas the Secretary of War subsequently directed said sanitary district of Chicago to regulate the discharge of water into the Chicago Drainage canal so that the maximum flow through the Chicago river shall not exceed 200,000 cubic feet per minute from midnight to 4 p.m., nor 300,000 cubic feet per minute from 4 p.m. to midnight.

And whereas said sanitary district of Chicago has applied to the Secretary of War for permission to increase the flow between midnight and 4 p.m. daily to 250,000 cubic feet per minute, and the Chief of Engineers has recommended that the increase applied for be granted, but that the rate of flow from 4 p.m. to midnight be reduced to 250,000 cubic feet per minute, so that the flow through the Chicago river shall not exceed 250,000 cubic feet per minute throughout the twenty-four hours of the day ;

Now, therefore, this is to certify that, in accordance with the recommendation of the Chief of Engineers, the Secretary of War hereby gives unto said sanitary district of Chicago permission to regulate said discharge so that the maximum flow through the Chicago river shall not exceed 250,000 cubic feet per minute throughout the twenty-four hours of the day, upon the following conditions :—

1. That this permission shall be in lieu of the present authorized rates of flow as stated above.

2. That the permission herein given shall be subject to such modification as in the opinion of the Secretary of War the public interests may from time to time require.

3. That said sanitary district of Chicago shall be responsible for all damages inflicted upon navigation interests by reason of the increase in flow herein authorized.

Witness my hand this 5th day of December, 1901.

WM. CARY SANGER,
Assistant Secretary of War.

[Permit of January 17, 1903.]

Whereas, under date of December 5, 1901, by an instrument supplementary to the original permission granted by the Secretary of War, May 8, 1899, to the sanitary district of Chicago to open the artificial channel from Robey street, Chicago, to Lockport and cause the waters of Chicago river to flow into the same, the Secretary of War, pursuant to authority reserved in said permission of May 8, 1899, gave permission to the sanitary district of Chicago to regulate said discharge so that the maximum flow through the Chicago river shall not exceed 250,000 cubic feet per minute throughout the twenty-four hours of the day, upon the following condition, *inter alia* :

'That the permission herein given shall be subject to such modification as in the opinion of the Secretary of War the public interests may from time to time require.'

And whereas the said sanitary district of Chicago has applied for permission to increase the flow through the Chicago river from 250,000 cubic feet per minute to 350,000 cubic feet per minute during the closed season of navigation, in order to carry off the accumulations of sewage deposit which line the shores along said city :

Now, therefore, this is to certify that, in accordance with the recommendation of the Chief of Engineers, the Secretary of War hereby gives unto said sanitary district of Chicago permission to increase the flow through the Chicago river from 250,000 cubic feet per minute to 350,000 cubic feet per minute until the 31st day of March, 1903,

after which date it shall be reduced to 250,000 cubic feet per minute, as now authorized, upon the following conditions :—

1. That the permission herein given shall be subject to such modifications as in the opinion of the Secretary of War the public interests may from time to time require.

2. That said sanitary district of Chicago shall be responsible for all damages inflicted upon navigation interests by reason of the increase in flow herein authorized.

Witness my hand this 17th day of January, 1903.

[SEAL.]

WM. CARY SANGER,
Assistant Secretary of War.

APPENDIX E.

Resolved by the Senate, the House of Representatives concurring herein:

1. That it is the policy of the state of Illinois to procure the construction of a waterway of the greatest practicable depth and usefulness for navigation from Lake Michigan via Des Plaines and Illinois river to the Mississippi river, and to encourage the construction of feeders thereto of like proportions and usefulness.

2. That the United States is hereby requested to stop work upon the locks and dams at Lagrange and at Kampsville, and to apply all funds available and future appropriations to the improvement of the channel from Lasalle to the mouth, with a view to such a depth as will be of present utility, and in such manner as to develop progressively all the depth practicable by the aid of a large water supply from Lake Michigan at Chicago.

3. That the United States is requested to aid in the construction of a channel not less than 160 feet wide and 22 feet deep, with such a grade as to give a velocity of 3 miles per hour from Lake Michigan, at Chicago, to Lake Joliet, a pool of the Des Plaines river immediately below Joliet, and to project a channel of similar capacity and not less than 14 feet deep from Lake Joliet to Lasalle, all to be designed in such manner as to permit future development to a greater capacity.

Adopted by the Senate, May 27, 1889.

Concurred in by the House of Representatives, May 27, 1889.

APPENDIX F.

REPORT to the International Waterways Commission on the disposal of Sewage of Chicago and Vicinity, by Rudolph Hering and George W. Fuller, December 18, 1906.

NEW YORK CITY, December 18, 1906.

To the International Waterways Commission :

SIRS,—In respense to your recent request we beg to report herewith upon several propositions connected with the question of extending the method of disposing of the sewage of Chicago and vicinity by means of dilution with Lake Michigan water. Your instructions may be briefly summarized as follows :—

1. Examination into the sanitary situation at Chicago so far as it is affected by sewage disposal.

2. Latest conclusions of sanitary engineers as to the amount of dilution which is required to make sewage inoffensive.

3. Is the extension of the dilution method to the outlying territory the only way to preserve the lives and health of the people of Chicago ?

4. For the Calumet area, are there not other methods of sewage disposal which may be applied at a cost not exceeding much, if at all, the cost of the method of dilution proposed, and which will be equally effective in preventing the pollution of the lake waters ?

5. Description of the various systems of sewage disposal which are available for the Calumet area, with a statement of their relative efficiencies.

6. Statement of the approximate relative costs of the last mentioned so far as they can be given without the preparation of detailed plans.

You further state clearly in your letter of instructions that you do not desire an investigation into the effect of the present method upon the navigation interests of the Great Lakes, as that has already been officially considered by yourselves. Further, you state that you accept as a fixed fact the Chicago Drainage canal as designed and built, with its attendant diversion of 10,000 cubic feet per second of lake water through the Chicago river and its branches.

In accordance with further instructions we have not given consideration to questions of a legal or legislative nature. We have viewed this problem solely as an engineer proposition without regard to inter-state questions and other features associated with the fact that a portion of the future metropolitan area of Chicago will obviously lie within the state of Indiana. It is further understood that under the existing circumstances we are to give you our opinion without entering into such details as would be required by additional surveys or other field work beyond a personal inspection of the areas.

SEWAGE DISPOSAL AT CHICAGO.

Drainage canal.—Nearly all of the sewage from the population of Chicago now connected with sewers is diluted with Lake Michigan water, which, since January 17, 1900, has been allowed to flow through the new drainage canal and thus reach the valley of the Illinois river. This method of disposal is the outcome of various investigations, particularly of a commission on the drainage and water supply of Chicago in 1886-87. It was formally adopted in 1889 by state legislation, creating the 'Sanitary District of Chicago,' specifically providing that the volume of lake water for purposes of dilution shall be 3½ cubic feet per second for each 1,000 of population connected with the sewers, or 20,000 cubic feet per minute for each 100,000 population.

Early methods.—In early days part of the sewage of Chicago flowed directly into the lake and part into the Chicago river and its branches. From the latter a portion of the water and sewage, beginning over thirty-five years ago, has been pumped at Bridgeport into the Illinois and Michigan canal, as is true to some extent to-day. It is understood that the old canal is to be discontinued by legislative action as soon as equivalent transportation and power facilities can be arranged for by means of the new canal.

Area of sanitary district.—In 1903, an Act of legislature was passed extending the area of the sanitary district from 185 to 358·1 square miles, and including the 'north shore addition' of 78·6 square miles, and the 'Calumet addition' of 94·5 square miles. The area of the City of Chicago is 190,638 square miles, leaving 167,462 square miles as the area of the present sanitary district outside of the city limits.

There are several features to be noted in connection with the method of sewage disposal of the city of Chicago as adopted in 1889. It had been found to be the cheapest method then available for disposing of the sewage so that it would not pollute the public water supply, which was then and is now derived from Lake Michigan through a series of intake cribs located at various distances from shore.

Intercepting sewers.—To prevent such pollution it was of course necessary first to divert all of the sewage into the Chicago river. A pure-water commission was appointed by the mayor in 1897 to consider the question of intercepting sewers for that purpose. It recommended among others a large intercepting sewer to collect the sewage from the area along the lake front between Seventy-third and Thirty-first streets, and about a year ago a 20-foot conduit was completed on Thirty-ninth street, through which the diluted sewage from this area now passes to the south fork of the south branch of the Chicago river. At present there is a gravity flow of lake water ordinarily of about 40,000 cubic feet per minute. Pumps are now in process of erection by which ultimately there will be pumped through this conduit about 120,000 cubic feet of lake water per minute, or 2,000 cubic feet per second.

On Twenty-second street there was formerly a main sewer draining the area bordering on the lake front between Thirty-first and Sixteenth streets, and discharging into the lake. In 1898 the flow in this sewer was reversed so that its contents now discharge into the river.

On Twelfth street, in 1898, the flow in the main sewer was also reversed.

In the heart of the city, or business section, the sewers have always discharged into the river and not into the lake. The same is true of a considerable area lying north of the Chicago river and along the lake shore. To facilitate this discharge a conduit was put in service in 1880 at Fullerton avenue, through which there has been pumped about 12,000 cubic feet of lake water per minute into the north branch of the Chicago river.

At the present time there is no sewage entering the lake between Surf street (just north of Lincoln Park) on the north side and Seventy-third street on the south side of Chicago.

Plans are under way for the construction of the necessary works to collect the sewage along the lake front between Seventy-third and Eighty-seventh streets and to pump it into sewers west of Halsted street, which lead to the Chicago river. There is very little or no sewage from this area now reaching the lake, as the district is yet practically unsewered.

On the north side there is an area between Surf street and the northern city limits and between the lake shore and the ridge between the lake and the river, which now discharges sewage into the lake, but which will be diverted next summer. This sewage is to be collected by interceptors conducting it to Lawrence avenue, where will be located a pumping station and a conduit for pumping the sewage and about 35,000 cubic feet of lake water per minute into the north branch of the Chicago river.

Farther north, at Wilmette, a conduit is proposed to be built with a pumping station near the Northern Railroad bridge in Evanston, where about 60,000 cubic feet of lake water per minute will be diverted into the north branch of the Chicago river.

Summary of flow to canal.—The projected flow of the lake water to the canal through the Chicago river and its branches to the drainage canal may therefore be divided and summarized as follows :—

	Cubic feet, per minute.	Cubic feet, per second.
Main stream, Chicago River	373,000	6,217
Thirty-ninth street conduit	120,000	2,000
Fullerton avenue conduit	12,000	200
Lawrence avenue conduit	35,000	583
Wilmette conduit	60,000	1.000
Total	600,000	10,000

The volume for the main stream of the Chicago river as above stated is obtained by deducting the remaining quantities from the total.

SESSIONAL PAPER No. 19

REQUIREMENTS FOR THE REVERSAL OF FLOW IN THE CHICAGO RIVER.

The satisfactory disposal of the sewage of Chicago by means of the new drainage canal requires that, at and after heavy rainfalls, the storm water and sewage from the watershed of the Chicago river shall not flow into Lake Michigan, and therefore it is necessary to secure a practical reversal of the original flow in the Chicago river.

The drainage area of the Chicago river is about 270 square miles. Flood flows in the river have reached a maximum of about 10,000 cubic feet per second, or 600,000 cubic feet per minute, and this fact was also an important element in fixing the minimum size of the present drainage canal.

As to the efficiency of arrangements for the reversal of flow, our inquiries lead us to believe that this has been accomplished in a satisfactory way. Up to the present time, and owing to the insufficient waterway of some parts of the Chicago river, the volume of Lake Michigan water going through the river has not approached the volume above stated. But there have been times when a continuous flow of the Chicago river has been towards Lake Michigan for perhaps two or three hours. This time is necessary to properly regulate the water level at the controlling works near Lockport.

POPULATION OF CHICAGO NOW SEWERING INTO THE DRAINAGE CANAL.

We find that the present population of Chicago is, in round numbers, 2,000,000 poeple, of which between 100,000 and 200,000 reside south of Eighty-seventh street, tributary to the Calumet district, but within the city limits. Of the remaining population about 300,000 reside in the southern lake front district. This area is tributary to the Thirty-ninth street pumping station, which, since about January 1, 1906, has brought about the diversion of the sewage from the lake into the south fork of the south branch of the Chicago river.

There is still an area in the northwestern part of the city north of Lincoln Park, spoken of as the Northern Lake Front district, which drains directly into the lake. Its population may be very roughly estimated at 70,000.

There is a considerable area south of Seventy-third street and west of Halsted street, and also a portion of the northwestern part of the city which are of a semi-suburban character. Some portions have been provided with sewers and receive the overflow from cesspools.

So far as we are able to ascertain from local officials and without making a personal canvass as to details, it appears that there are now, in round numbers, about 1,500,000 people sewering into the drainage canal. In addition to the sewage there enters it a considerable quantity of trade wastes, notably about 2,000,000 gallons from the stock-yard district, and from quite a number of other industrial establishments, such as tanneries, wool-pulling establishments, &c., as stated by the sanitary inspector in the last report of the health department.

It is our understanding that the present sewage disposal project for Chicago is not intended to provide for the disposal of trade wastes now discharged into the sewers. While comparatively little has been done as yet to remove them from the sewers, we have been informed that it is proposed to take up this matter actively.

INFLUENCE OF SEWAGE ON CHICAGO WATER SUPPLY.

The city of Chicago receives its water supply from Lake Michigan through a series of tunnels of various lengths, ranging from about 1 to 5 miles from shore. Most of them extend from the shore about 2 miles. The total pumping capacity for this supply is stated to be 529,000,000 gallons in twenty-four hours. In 1905 the average daily pumpage was recorded as 399,000,000 gallons.

Since the removal of the sewage through the drainage canal was systematically begun in January, 1900, the appearance of the water of the Chicago river has shown marked improvement.

The effect of the drainage canal upon the hygienic quality of the public water supply may be studied in connection with the typhoid fever death rates at Chicago, which are recorded in the next table, together with corresponding death rates for a number of other American cities. It is not to be assumed that typhoid fever is entirely due to the pollution of the public water supply at Chicago or elsewhere, as it is well known that there are other means of transmitting this disease. But its relation to the public water supply is so intimate that it gives, perhaps, the best general idea of the sanitary quality of the water, and therefore it frequently has been used as a rough means of such measurement.

There are other factors beside the drainage canal to be considered carefully in connection with the typhoid fever statistics at Chicago, and some of which should be mentioned here. Prior to 1900 there was a substantial improvement in the public water supply, partly due to the extension of some of the intake cribs and tunnels farther into the lake and partly to the reversal of the flow of a number of the sewers from the lake into the river, such as those at Twelfth and Twenty-second streets, in 1898. These are important factors in explaining the absence in the late nineties of such excessive typhoid death rates as were noted at the beginning of that decade.

Since the opening of the drainage canal typhoid fever at Chicago has been rather unusually prevalent at times. This was especially true in 1902-3, when, it is understood, portions of the supply became contaminated after leaving the intake crib. These accidental pollutions have since been corrected.

The report of the city chemist of Chicago, as given in the last annual report of the department of health, shows that on an average in 1905, the city water supply was considered by him to be safe about 85 per cent of the time.

While there has been a marked improvement in recent years in the quality of the Chicago water supply, due to the progressive elimination of sewage from the lake, there is still room for more improvement. These improvements refer to the pollution along the lake front north of Lincoln Park, which is being corrected, and to the 'Calumet area' south of Eighty-seventh street, which is now under consideration.

COMPARISONS of the Annual Number of Recorded Deaths from Typhoid Fever per 100,000 population at Chicago and other American Cities, 1890-1905.

Year.	Chicago.	Milwaukee.	Detroit.	Cleveland.	Buffalo.	Toronto.	Boston.	New York.	Philiadelphia.	Baltimore.	Washington
1890	83	33	18	69	44	80	43	21	64	57	89
1891	160	33	13	50	56	90	33	22	64	34	86
1892	103	31	64	59	38	40	25	14	40	42	72
1893	42	37	29	52	37	40	26	20	40	47	72
1894	31	26	27	29	62	20	23	17	32	49	72
1895	32	25	24	35	28	30	32	17	40	28	69
1896	53	18	23	43	22	24	32	16	34	37	51
1897	29	11	15	23	19	18	33	16	33	37	42
1898	38	17	18	34	29	16	34	20	51	38	64
1899	26	17	13	32	26	19	30	16	75	30	82
1900	20	21	18	54	27	19	25	21	35	37	77
1901	29	21	20	36	27	16	25	20	33	27	67
1902	44	16	17	33	33	13	35	21	44	42	79
1903	31	17	17	114	35	15	20	18	70	36	48
1904	19	13	16	48	91	22	18	17	.....	36	43
1905	16	20	12	15	23	.....	20	16	48	36	45

LATEST CONCLUSIONS AS TO THE REQUIRED DEGREE OF DILUTION FOR THE DISPOSAL OF SEWAGE WITHOUT NUISANCE.

The disposal of sewage by dilution depends on the amount of oxygen in the diluting water being sufficient to prevent putrefaction of the organic matter in the sewage as the latter undergoes bacterial decomposition. If the oxygen is deficient, bacterial decomposition produces what is called 'putrefaction,' with its various attendant bad

odors, such as noted for years in Chicago at 'Bubbly creek.' If there is a sufficient amount of oxygen dissolved in the water to combine with this organic matter, decomposition goes on without any foul odors and the organic matter is reduced to inert matter in an inoffensive way.

This question is one of balancing the amount of oxygen in a given volume of water with the amount of decomposing organic matter in the sewage, which naturally must vary greatly.

There are many observations of more or less accuracy available to give figures for this relation. The Massachusetts state board of health made a special inquiry into this subject for all local rivers in 1902, with conclusions, stated on page 452 of their annual report for that year, as follows :—

'The results of the investigations show that where the quantity of water available for the dilution of the sewage in a stream exceeds about 6 cubic feet per second per 1,000 persons discharging sewage, objectionable conditions are unlikely to result from the gross pollution of all the water of a stream in dry weather. Under favourable circumstances, such as in cases where the sewage is discharged at many outlets into a large body of water, objectionable conditions may not result where the dilution is somewhat less than 6 cubic feet per second per 1,000 persons ; but objectionable conditions have resulted in all of the cases thus far examined where the flow has been less than 3·5 cubic feet per second per 1,000 persons discharging sewage into the stream.'

These conclusions apply for the most part to comparatively small streams into which much manufacturing waste is discharged and upon which mill-ponds are situated.

There are times when the flow of water in the drainage canal appears to have been insufficient to eliminate objectionable odors entirely. How far this may be explained by confusion on the part of the observers of the putrefective odors, emanating from the Illinois and Michigan canal with those of the new canal, and how far it may be due to temporary reductions in the rate of flow in the new canal and river to facilitate construction work, and also to the effect of rainfalls and to old deposits in the south fork, we are unable to say.

The new canal appears to serve at present about one-half the population for which it was designed, and through it flows a volume of lake water which is variable, but which averages not far from one-half of the ultimate quantity.

It is our judgment that for large canals with the trade wastes eliminated a dilution of 3½ cubic feet per second for each 1,000 population connected with the sewers also receiving storm water is as low a figure as it is now possible to state. Local conditions, especially temperature, which affects bacterial activities and the coefficient of absorption of oxygen by water, and still other matters, bear upon this question, the detailed discussion of which is not now necessary. We feel certain that a dilution of 2½ cubic feet per second would cause offence at times, and probably also a dilution of 3 cubic feet per second.

FUTURE POPULATION ON AN AREA TRIBUTARY TO THE CHICAGO RIVER AND DRAINAGE CANAL WITH REFERANCE TO SEWAGE DISPOSAL.

On the basis of the diversion of 10,000 cubic feet per second of Lake Michigan water, on the present assumption of 3½ feet per second as being the volume to be provided for each 1,000 population connected with the sewers, and on the assumption of eliminating objectionable trade wastes, the present method of disposal may serve until the population on the drainage area of the Chicago river reaches 3,000,000 people.

On the further assumption that through the Chicago river and various conduits connected with its branches there will be a flow equal to 14,000 cubic feet per second, which is the capacity of the rock section of the drainage canal, the maximum population which might be taken care of in this way is about 4,200,000 people.

With a large portion of the 270 square miles draining into the Chicago river, but not yet built up, even on a suburban basis, it is evident that in future years there will be a much greater population than now exists.

We have considered the rate of growth of Chicago from various viewpoints, notably the density of its population, and have compared its growth with that of other metropolitan districts. There is, of course, no way of predicting accurately how rapid will be the growth of Chicago in future years; but it is a reasonable assumption that before many years it will become a city of some five or six millions of population. It seems reasonable to infer that the population residing upon the area tributary to the Chicago river and its branches will ultimately exceed both the 3,000000 and 4,200,000 estimates above mentioned. In other words, the present dilution method will certainly not alone for all time take care of the crude sewage of this area.

There are several available methods for the purification of sewage, depending upon the degree of purification desired, as will be noted beyond in connection with the Calumet area.

It is not probable that the sewage of the old part of Chicago will ever be purified by artificial means, as it would be proportionately much more difficult and expensive to deliver the sewage to suitable sites for purification than to continue the present dilution method. It is different with the outlying districts tributary to the Chicago river. In the future, when these districts become built up so that the population exceeds the limits above stated, the installation of sewage purification works will necessarily follow.

PROPOSED CALUMET CANAL.

The more essential features of this proposed canal, as obtained from local officials, may be summarized as follows :—

Location.—The canal would extend from a point on the Little Calumet river, near Blue island, through the Sag valley, and enter the drainage canal near Sag station.

Territory tributary.—The total drainage area of the Calumet river is 825 square miles, of which 473 are in Indiana. Within the limits of the sanitary district of Chicago and south of Eighty-seventh street, the area is 94·5 square miles, with a population of about 100,000 in 1900. It is stated that the population has nearly doubled within the past six years, and it is expected to reach a million people or more within a fairly short period, as the conditions for a manufacturing district are very favourable.

Size.—The size of this canal, as proposed, is such as to give a flow of 4,000 cubic feet per second.

Reversal of flow.—The natural flow of the Calumet river exceeds 12,500 cubic feet per second. It is proposed, if suitable legislation can be secured, to construct a dam below Thorn creek, at the southern boundary of the sanitary district, and divert into Lake Michigan, through a channel to be built about 17½ miles east of the state line, the flow of this stream, with a drainage area of about 587 square miles. The size of the proposed Calumet canal is too small to secure at all times a reversal of flow of the remaining portion of the area, which is about 240 square miles. It is proposed to put a controlling lock on the canal east of Blue island to prevent flood waters from this lower area entering the canal, at which times sewage entering the river on the lake side of the lock would go into the lake.

The proposed canal is insufficient to carry, in the future, al the storm flows of the Sag valley itself. These would, at least, in part, require diversion through present or other channels.

Cost.—The estimated cost of this proposed canal is $12,000,000.

Population to be served.—On the assumption already stated, this canal, by dilution, would dispose of the sewage of about 1,200,000 people, not including objectionable trade wastes. This makes the cost of sewage disposal $10 per capita for the entire

future population, or about $60 for the present population. The sewage would for the most part reach the canal by gravity through the Calumet river, so that the cost of maintenance would be comparatively small.

In passing, we may say that the Calumet area, both in Illinois and Indiana, is certain to develop rapidly, and its population will eventually far exceed the above figure.

RELATION OF SEWAGE DISPOSAL FOR THE CALUMET AREA TO THE WATER SUPPLY OF CHICAGO.

For the reasons above stated in connection with the reversal of flow, the sanitary effect upon Lake Michigan water at the Hyde park intake and vicinity of this proposed Calumet canal would not be nearly as effective as that of the main canal for the Chicago river territory and neighbouring intakes. This fact is important in connection with the degree of sewage purification required by artificial purification works to give a sanitary effect equal to that of the proposed canal.

There seems to be no doubt that at times the sewage entering the Calumet river under present conditions from this district pollutes the lake water from the Hyde park intake crib. It may pollute the water at other intakes, but our evidence is not conclusive. In the future, when the Calumet area is built up, it is possible that intake cribs may be built nearer to the mouth of the Calumet river than is the Hyde park intake

In view of the fact that the proposed Calumet canal can not keep all sewage out of Lake Michigan at times of heavy rainfall, it is important to note that the water supply of this section of Chicago will eventually have to be purified by modern filtration works. This can be done at moderate cost, and it will be the cheapest and best solution of this problem to filter the water supply of this district and to purify the sewage to such a degree that the effluent will be fairly clear and non-putrescible, that is, free from disagreeable odours. With additional expense the sewage effluent (of the quality just stated) can be given a supplementary purification, making it practically free of bacteria by treating it with a germicide or by filtering it according to water purification practice.

Under existing conditions we are firmly of the opinion that all the purification required of the sewage of the Calumet district is to make it fairly clear and non-putrescible.

AVAILABLE METHODS OF SEWAGE DISPOSAL OTHER THAN THAT OF THE DILUTION METHOD PROPOSED FOR THE CALUMET AREA.

The degree of purification of sewage by various forms of treatment differs naturally under different local conditions, but from general experience approximate results may be compared, substantially as follows :—

Method.	Percentage purification.		
	Suspended matter.	Organic matter.	Bacteria.
Fine screens (30-mesh or finer)	15	10	15
Sedimentation	65	30	65
Septic treatment	65	30	65
Chemical precipitation	85	50	85
Contact filters *a*	85-90	65-70	80-85
Sprinkling filters *a*	85-90	65-70	90-95
Intermittent sand filters *a*	95-99	90-98	98-99

a The figures for the last three forms of treatment are on the assumption that the sewage is given some form of preparatory treatment before it is applied to the filters, and that with the sprinkling filters the effluent is allowed to settle.

It is to be stated that none of the first four treatments above tabulated will by itself give a non-putrescible effluent. Therefore they can be used here only in connection with some form of filtration.

For large works, filters can be more economically operated if the sewage is first clarified in part, as stated in connection with the above summary. The most appropriate method for this preparatory or preliminary treatment is considered by most sanitary engineers in this country and abroad to consist of septic tanks, which is the expression applied to sedimentation basins in which the deposited sludge is allowed to accumulate to undergo bacterial action.

There are several forms of filters, the most widely known of which, in this country, is the intermittent sand filter, sometimes mentioned as the so-called 'land treatment' for sewage disposal. This method was considered in 1886-87 for the entire Chicago area and reported upon unfavourably on account of its being more expensive than the adopted method of dilution.

Local experience.—We find that a feeling appears to prevail among some persons at Chicago against land treatment of sewage, due perhaps to the unsuccessful operation of the sewage farm at Pullman, which is situated within this Calumet area.

We are familiar with the facts and experiences at Pullman, and are clearly of the opinion that they are not necessarily a criterion for the Calumet area. This opinion is based partly upon the small size of particles of the soil at the Pullman farm, and partly upon the fact that the farm was devoted principally to agricultural rather than sewage purification purposes.

Sand areas.—We have examined the tracts of lake sand which are found in Indiana and to a limited extent in the township of Thornton, Ill. The latter areas are too limited in extent and too shallow to be considered for present purposes. The only areas of suitable porous sand for land treatment of the Calumet sewage are in Indiana.

We have collected five samples of this sand for mechanical analysis, and have obtained the results as to size of sand grains. Representative results average substantially as follows :—

	Millimeters.
Effective size	0·15
Uniformity coefficient	1·40

If we disregard the state boundary line, a large tract of sand of a suitable character is available for the disposal of the sewage of this district. The best area lies between the Little Calumet and the Grand Calumet rivers, and extends east of Hammond for many miles.

Within the past six or eight years great strides have been taken in the field of sewage purification in connection with works of wholly artificial construction. We refer particularly to filters of coarse, firm material, such as broken stone, slag or clinker, and usually spoken of as 'coarse-grained filters,' as distinguished from fine-grained sand filters.

Coarse-grained filters are of two types, spoken of as 'contact filters' and 'sprinkling filters,' according to the method by which the sewage is applied to them. These filters produce an effluent which will not putrify when they are operated at a rate far greater than that which is possible for sand filters.

We shall describe briefly each of these types of sewage-purification methods and state their approximate cost of construction on suitable sites for the Calumet area, based upon unit prices in accordance with experience elsewhere.

An outline is first required, however, of the intercepting sewers, pumping stations, and rising mains necessary to collect and deliver the sewage to the filter sites, of which there are several available.

Regardless of the particular kind of filter found most suitable for the Calumet area, there are a number of features common to all methods, and which may be stated as follows :—

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Separate sewers.—With the adoption of sewage filters for this district we are clearly of the opinion that it would be advisable hereafter to build a separate system of sewers for domestic sewage only. Some, if not all, of the existing main sewers could be used for the removal of storm and surface water only, and new sewers parallel them for sewage removal; or, some of the existing sewers could be utilized for sewage removal, requiring new structures for storm-water removal. Trade wastes should be excluded from all sewers. We have obviously not included in the cost of purifying the sewage any expense for the main swers or laterals to collect it and deliver it to the interceptors.

Volume of sewage.—We have assumed that the sewage of this district will approximate 130 gallons per capita daily on an average. With a population of 1,200,000 the total volume of sewage would therefore be about 156,000,000 gallons daily. We have also allowed for ground-water seepage up to 1,000 gallons per square mile per day.

Interceptors.—For purposes of making approximate but liberal estimates of cost of purifying the sewage of this district, we have prepared sketches showing the intercepting sewers which will be required in order to collect the sewage of the district at four or more centrally located pumping stations. We have assumed that these intercepting sewers will be built of concrete, and when flowing full, have a capacity of 250 gallons per twenty-four hours for each person resident upon the area tributary to the interceptor. When full, these interceptors have been assumed to have a velocity of 2·5 feet per second. We have also assumed, after excluding that portion of the Calumet district reached by extreme high water in the lake, that on an average the population contributing to the four or more pumping stations would be about 20 to 25 persons per acre. On this basis the length and size of the necessary intercepting sewers have been obtained.

Pumping stations.—For convenience we have located four main pumping stations near Riverdale, Harvey, South Hammond, and South Chicago. There will be required, when the district is built up to the extent herein considered, a total pumping capacity of about 340,000,000 gallons daily, including necessary reserve capacity at each station.

Septic tanks.—Regardless of the type of filter adopted, the sewage would be screened at the pumping stations, and then flow through septic tanks having a capacity of eight hours' flow on an average. These tanks would be about 12 to 15 feet deep, built of concrete, and arranged in compartments, so as to facilitate septic action on the deposited sludge, but without such action taking place in the flowing sewage itself. Owing to the severe winter climate in this vicinity, it is our opinion that it would be wise to cover these tanks.

Of the solid matters in suspension in the sewage about 65 per cent would deposit in the septic tanks, and of these deposited solid matters about one-half would be liquified and gasified by bacterial decomposition.

The sludge, which would be removed at intervals of once a year or so from the tanks, is estimated to contain about 85 per cent water and to amount to about 2 cubic yards per 1,000,000 gallons. Bacterial action converts this sludge to a practically inert mass which can be pumped in thin layers on to adjoining land and allowed to dry.

This is the form of preliminary treatment in use in some 40 places in this country, including Plainfield, N.J., Saratoga, N.Y., Mansfield, Ohio, Champaign, Ill., &c. It is the perliminary step in the works under construction at Columbus, Ohio, after elaborate tests of different methods were made for a period of nearly one year. It has also been adopted recently at Baltimore, Md., Reading, Pa., and Waterbury, Conn., and has been recently proposed for Paterson, N.J., in a somewhat modified form.

This form of preliminary treatment has been and is now extensively used in Europe with satisfactory results where the tanks are built and operated to meet local conditions as to volume and strength of sewage.

The odors from large open septic tanks are seldom noticeable a few hundred feet away. Under good management, a septic effluent can be applied to sprinkling filters, so that no objectionable odors should be carried one-quarter of a mile.

The cost of building and operating septic tanks would be substantially the same for all filler projects, and is considered under each as a common factor.

INTERMITTENT SAND FILTERS.

This well-known method consists of applying the partially clarified sewage coming from the septic tanks to areas of porous sand, below the surface of which at depths of from 3 to 5 feet are underdrains of open-jointed pipe to convey the purified sewage to the nearest water course. The sewage is applied only at intervals of once a day or so to a depth of perhaps 6 inches. Between applications the sand layer is allowed to drain so that its pores may fill with air. This æration of the pores of the sand allows bacterial processes to convert the organic matter to a large extent to harmless mineral matter. The effluent is practically free of noticeable suspended matter and objectionable organisms and can be discharged directly into the nearest water course.

This method is now in successful use in 40 to 50 places in this country where porous sand areas are available. It serves a total population of about 350,000 people. Well-known plants are to be found at Framingham, Brocton, Clinton, and Worcester, Mass.; Pawtucket and Woonsocket, R.I.; Meriden and New Britain, Conn.; Saratoga, N.Y., &c.

From time to time it is necessary to rake, harrow, or plough the surface of intermittent sand filters and to remove the scum which slowly accumulates there. At intervals it is necessary to scrape off several inches of the upper portion of the sand layer when it is found that they are so clogged that harrowing and ploughing no longer prevents the surface from remaining covered with sewage.

With crude sewage it appears from Massachusetts evidence, especially from the tests conducted for a period of nineteen years at the Lawrence Experiment Station, that it would be necessary to provide 1 acre of intermittent sand filters for each 500 persons connected with the sewers when the sewage is given a preliminary treatment in septic tanks and when the filters are operated under intelligent supervision the area may be reduced so as to provide 1 acre per 1,000 persons.

The most suitable natural site for sand filters for the Calumet area is to be found in the State of Indiana, between the Little Calumet and the Grand Calumet rivers, east of the city of Hammond.

It is possible to build artificial sand filters within the Calumet district, but the cost would be much greater than for any of the projects considered in this report.

Based upon our knowledge of these filters elsewhere, and without considering inter-state complications, we estimate that the cost of installing and operating such a plant, with its various appurtenances, east of Hammond, and of a capacity of about 180,000,000 gallons daily to serve a population of 1,200,000 people, would be as follows:

Estimated cost of constructing sand filter plant and appurtenances.

Intercepting sewers, pumping stations, and appurtenances, including a daily capacity of 340,000,000 gallons, and rising mains	$5,070,000
Septic tanks, 60,000,000 gallons capacity, covered, including sludge-disposal facilities	950,000
Intermittent sand filters. 1,200 acres, with distributors, drains, office, laboratory, &c.	3,600,000
	9,620,000
Contingencies and supervision, 15 per cent	1,443,000
Total	11,063,000

Annual Cost of Operation.

Pumping, fuel, labour and repairs	$300,000
Supervision, analytical and clerical assistants, &c.	25,000
Care of septic tanks, including sludge disposal	36,000
Care of sand filters	480,000
Supplies and miscellaneous	25,000
	866,000

Capitalizing the operating expenses at 5 per cent per annum there is obtained $17,320,000, which, when added to the estimated construction cost, makes a total sum of $28,383,000 for the sand-filter project.

CONTACT FILTERS.

These filters consist of beds of broken stone, slag, or cinders, placed in uncovered basins to a depth of from 3 to 5 feet. The size of material ranges from about one-fourth to 1 inch.

The filters are ordinarily operated upon the fill and draw plan, that is, the gate on the outlet pipe is closed until the voids of the bed are filled with sewage from the septic tanks. After filling, the filters are allowed to stand full for an hour or so, then the sewage is allowed slowly to drain out, and this cycle of operation is repeated once or twice a day.

When the filtering material is drained the voids fill with air, and it is during these periods of draining that bacterial processes accomplish the purification of the organic matter, which to a large degree is lodged upon the surfaces of the filtering material as the sewage is slowly withdrawn from the bed. The rates of filling and drawing the beds may be satisfactorily controlled by a number of automatic devices on the market and which are in successful use in a number of places.

Contact filters are an English adaptation of studies made some fifteen years ago upon the gravel filters by the Massachusetts State board of health at the Lawrence Experiment Station. These studies were begun about thirteen years ago at London. As an outcome of these and numerous other investigations, contact filters have been adopted and are in successful use for dozens of English cities, the largest of which is Manchester, with a population of about 600,000.

In this country, contact filters have been installed for a dozen or more smal cities and numerous institutions. Perhaps the best known plants are at Plainfield, N.J., Mansfield, Ohio, and Charlotte, N.C. They are especially applicable to projects where only a small amount of head is available and where pumping would be required for sprinkling filters.

For large projects, and where pumping is not a factor, recent experiences with sprinkling filters show that as a rule they are more economical. Notwithstanding this, contact filters have served and will serve a useful purpose, in the field of sewage disposal in this country. There conveniences of operation makes them especially suitable for small installations.

Many contact-filter plants have their beds arranged in terraces so that the sewage may be passed successively through two or three filters. There are a number of advantages of this arrangement, but it is not applicable to the Calumet district, owing to the level area of the available sites. One of the advantages of the double and triple contact filters is that they may be operated from below during winter weather and thus guard against reductions in the rate of filtration due to freezing.

The most available and suitable local sites are : A tract west of Harvey and between the Illinois Central and Rock Island railroads ; a tract west of Hammond and the local branch of the Fort Wayne railroad; and a tract between Lakes Calumet and Wolf.

As to the rate of filtration, we have assumed that contact filters should be 5 feet in depth and that they would satisfactorily purify the effluent from septic tanks at the rate of 600,000 gallons per acre per twenty-four hours. This means that 1 acre of contact filters should be provided for every 4,000 persons connected with the sewers.

The effluent from contact filters operated under these conditions would be ordinarily free from objectionable amounts of suspended matter, and the amount of organic matter would be so reduced that it would not putrify upon standing. On an average about 15 to 20 per cent of the bacteria in the crude sewage would be present in the effluent. It would not be improper to discharge such an effluent as it came from the filters, directly into the nearest water course.

The amount of atendance required for contact filters it not great, and is covered mainly by the necessary gatemen, analysts, and foremen. At intervals, all the material would have to be removed from the filters, washed and replaced.

The approximate cost of building and operating a contact-filter plant with all needed appurtenances of a capacity of about 180,000,000 gallons daily to serve 1,200,000 people may be estimated as follows :—

Estimated cost of constructing contact-filter plant and appurtenances.

Intercepting sewers, pumping stations and appurtenances, including a daily capacity of 340,000,000 gallons, and rising mains	$3,300,000
Septic tanks, 60,000,000 gallons' capacity, covered, including sludge, disposal facilities	950,000
Contact filters, 300 acres, with all piping, appurtenances, office, laboratory, &c	6,000,000
	10,250,000
Contingencies and supervision, 15 per cent	1,537,500
Total	$11,787,500

Annual Cost of Operations.

Pumping, fuel, labour and repairs	$200,000
Supervision, analytical and clerical assistants	30,000
Care of septic tanks, including sludge disposal	36,000
Care of contact filters	260,000
Supplies and miscellaneous	25,000
Total	551,000

Capitalizing the operating expenses at 5 per cent per annum there is obtained $11,020,000, which when added to the estimated construction cost makes a total sum of $22,807,500 for the contact-filter project.

SPRINKLING FILTERS.

Sprinkling filters differ from contact filters principally in the method of application of sewage, which in our northern climates is discharged upon them in the form of spray from a series of fixed sprinkling nozzles placed about 12 or 15 feet apart. The filters are usually deeper and of somewhat coarser material than contact filters.

These filters also are an English adaptation of the Lawrence investigations made with gravel filters, some fifteen years ago. The English studies began at Salford in 1892 and have resulted in the adoption of this form of filter for many of the principal cities in England, the largest of which is the metropolitan district of Birmingham, with a population of over 900,000. Some of these filters have been in successful prac-

tical operation for more than eight years. On the Continent, this method is being adopted for portions of the suburbs of Paris and Berlin.

In this country, this method has been studied with care at Lawrence, Mass.; Columbus, Ohio; Boston, Mass., and Waterbury, Conn. Filters of this type are now under construction at Columbus, Ohio, and Reading, Pa. They have been recently adopted for Baltimore, Md.; West Chester, Pa., Washington, Pa., and Waterbury, Conn. They have been recommended for use also at Paterson, N.J.

The important element of aeration is secured in sprinkling filters, partly by applying the liquid as a spray and partly through the use of coarse material with voids of a size so that there is a vertical circulation of air through the filtering material at all times.

Suspended mineral and organic matters and some of the dissolved organic matters are retained upon the surface of the filtering material as the liquid passes in thin films over the surface of the particles. Bacterial activities reduce the organic matter to a material degree, and from time to time the remaining inert material cracks and peels and passes through the filter bed to the bottom. In order to be able to remove this accumulated matter, it is necessary to provide false bottoms for these filters. Filters of this type have been in successful use for more than eight years without cleaning, and it is believed that under favourable conditions cleaning is not required oftener than once in ten or fifteen years.

The amount of suspended matter in the effluent of sprinkling filters due to this unloading of stored material is sufficient to require passing the effluent through settling basins, holding about two hours' flow, before discharging into the nearest water course. The settled effluent, of satisfactory appearance and with its organic matter so reduced that it will not putrefy, usually contains less than 10 per cent of the bacteria in the crude sewage.

There is a considerable range in size of broken stone and in depth of material as adopted in various large plants now built or building. Avoiding extremes, it may be stated that the depths average about 7 feet, and the size of material ranges from about 1 to 2½ inches, mean diameter. We have assumed these figures for sprinkling filters for the Calumet area, to be built of broken stone at the sites already mentioned for contact filters, namely: west of Harvey, west of Hammond, and between Lakes Calumet and Wolf.

We have carefully considered the climatic conditions at Chicago and compared them with temperatures where practical experiences with sprinkling filters have been obtained. There is no trouble from the freezing of the sprinkler nozzles through which sawage is applied under a head of 6 or 7 feet. During the zero weather some frozen sewage accumulates on the surface of the filter and at such times it is necessary to have some reserve area. We have assumed that under these local conditions one acre of sprinkling filters should be provided for every 15,000 people connected with the sewers, making a rate ordinarily of about 2,250,000 gallons per acre per twenty-four hours. As was demonstrated at Columbus, such rates for several weeks at a time may be doubled and still obtain a satisfactory nonputrescible effluent. This rate, expressed in persons served per acre-foot of sprinkling filter material, is only about one-half of that provided for at Columbus, Ohio, and one-third of that in several plants in England.

The approximate cost of building and operating a sprinkling filter plant with all needed apportenances, of a capacity of 180,000,0000 gallons daily, to serve a population of 1,200,000 may be estimated as follows:—

Estimated cost of constructing sprinkling filter plant and appurtenances.

Intercepting sewers, pumping stations and appurtenances, including a daily capacity of 340,000,000 gallons, and rising mains	$3,300,000
Septic tanks, 60,000,000 gallons' capacity, covered, including sludge-disposal facilities	950,000
Sprinkling filters, 80 acres, with all appurtenances, office, laboratory, &c	3,600,000
Settling basins, 15,000,000 gallons' capacity	200,000
	8,050,000
Contingencies and supervision, 15 per cent	1,207,500
Total	9,257,500

Annual Cost of Operation.

Pumping, fuel, labour and repairs	$ 200,000
Supervision, analytical and clerical assistants	30,000
Care of septic and settling tanks, including sludge disposal	54,000
Care of sprinkling filters	110,000
Supplies and miscellaneous	25,000
Total	$419,000

Capitalizing the operating expenses at 5 per cent per annum, there is obtained $8,380,000, which when added to the estimated construction cost makes a total sum of $17,637,500 for the sprinkling filter subject.

CONCLUSION.

In recapitulating the substance of the foregoing inquiry and referring specifically to your instructions, summarized at the outset, we conclude as follows :—

1. The examination into the sanitary situation at Chicago, so far as it is affected by sewage disposal, revealed that since removing the sewage through the drainage canal the appearance of the water of the Chicago river has shown marked improvement. As regards the hygienic quality of the public water supply there has also been an improvement, due to the progressive elimination of sewage from the lake, which elimination should be completed within a few years.

2. The latest conclusions of sanitary engineers as to the amount of dilution which is required to make sewage inoffensive, are that a dilution of 3⅓ cubic feet per second for each 1,000 persons conected with the sewers, as provided for in the enactment of the Illinois legislature in 1889, is as low a figure as it is now possible to state. We believe that with the elimination of objectionable trade wastes and the occasional dredging of the river, this amount of dilution will be sufficient to prevent offensiveness.

3. The extension of the dilution method to the outlying territory is not the only way to preserve the lives and health of the people of Chicago. The application of this method with flows of 10,000 and 14,000 cubic feet per second, respectively, for the area tributary to the present drainage canal will serve populations not exceeding 3,000,000 and 4,200,000, respectively. For greater populations, other methods of sewage disposal will be required.

4. For the Calumet area, as well as other districts, there are several methods for the disposal of sewage, as effective as the present method of dilution in preventing the pollution of the lake waters.

5. All of these methods involve intercepting sewers and pumping stations to collect and deliver the sewage at suitable sites. Septic tanks are used for partially clarifying the sewage, which may then be applied to any one of three methods of filters, viz., intermittent sand filters, contact filters and sprinkling filters.

All of these filters, if well built and well managed, remove the suspended and organic matters so that the effluents are practically clear and are non-putrescible. The removal of bacteria by these three types of filters averages at least 98, 80, and 90 per cent, respectively. Such effluents may be discharged directly into any of the water courses of the Calumet region.

6. The approximate total costs, liberally estimated, without the preparation of detailed plans, for a population of 1,200,000, are as follows :—

A.—*Intermittent sand filters.*

Construction	$11,063,000
Annual cost of operation, $866,000, capitalized at 5 p.c.	17,320,000
	28,383,000

B.—*Contact filters.*

Construction	11,787,500
Annual cost of operation, $551,000, capitalized at 5 p.c.	11,020,000
	22,807,500

C.—*Sprinkling filters.*

Construction	9,257,500
Annual cost of operation, $419,000, capital at 5 per cent.	8,380,000
	17,637,500

The present population on the Calumet area of the sanitary district being less than 200,000 would naturally require but a portion of the cost of estimated works and of their operation to be expended at the outset.

Of the available methods of disposing of the sewage of the Calumet area, other than by dilution, the sprinkling filter method, being the cheapest, both in cost of construction and of operation, and accomplishing an adequate degree of purification, is clearly the most advantageous one.

Very respectfully,

RUDOLPH HERING,
GEORGE W. FULLER.

REPORT OF THE INTERNATIONAL WATERWAYS COMMISSION ON THE LOCATION OF THE BOUNDARY LINE BETWEEN THE UNITED STATES AND CANADA THROUGH LAKE ERIE.

TORONTO, January 4, 1907.

The Honourable the Secretary of War of the United States, and the Honourable the Minister of Public Works of the Dominion of Canada :

This matter comes before the International Waterways Commission by indorsement of the Secretary of War, dated September 10, 1906, referring letters of the Acting-Secretary of State, dated September 5, 1906, and September 7, 1906, respectively. The subject matter referred is set forth in the letter of the Acting Secretary of State, dated September 5, which, after stating that the commander of the Canadian cruiser *Vigilant* had made a proposition to log and mark by buoys the exact international water boundary line on Lake Erie, thereby enabling fishermen to keep on their side of the line, and that difference of opinion exists between interested parties as to the exact location of the boundary line, asks that the matter be referred to this commission with the inquiry whether it is known that the American and Canadian charts of the locality agree as to the distance to be logged from the gas buoy at Erie to the boundary on the usual fishing ground.

After most diligent research, the commission has been unable to discover any authoritative description, map, or chart, American or British, from which the location of the boundary line on Lake Erie can be determined and laid down on modern charts, satisfactorily, except, from a point southeast of Middle island to the mouth of Detroit river and from a point near the mouth of Niagara river, northerly.

The sixth Article of the Treaty of Ghent, after stating that by the former treaty of peace, the boundary line from the point where the 45th degree of north latitude meets the St. Lawrence river, to Lake Superior, was declared to be 'along the middle of said river into Lake Ontario, through the middle of said lake, until it strikes the communication by water between that lake and Lake Erie, thence along the middle of said communication into Lake Erie, through the middle of said lake until it arrives at the water communication into the Lake Huron, thence through the middle of said lake to the water communication between that lake and Lake Superior,' and after stating that doubts have arisen as to 'what was the middle of said river, lakes and water communications, and whether certain islands lying in the same were within the dominion of His Britannic Majesty or the United States,' provides for a reference of the matter to two commissioners, who are instructed by the article to designate by a report or declaration under their hands and seals, the boundary through the said river, lakes and water communications, and to decide what islands belonged to each of the contracting parties, it being provided that the decision of the commissioners should be final and conclusive. The treaty referred to in this article is that concluded in the year 1783. By Article 11 of that treaty the boundary line of the St. Lawrence system is described as commencing at a point where the 45th degree of north latitude meets the St. Lawrence river, thence through the middle of that river and through the middle of Lake Ontario, the middle of the water communication between Lake Erie and Lake Ontario, the middle of Lake Erie, the middle of the water communication between Lake Erie and Lake Huron, the middle of Lake Huron to the water communication between that lake and Lake Superior, thence through Lake Superior northward of the Isles Royal and Phelipeaux to the Long lake. From this it follows that the commissioners were appointed to determine the middle line of all waters between

the east end of Lake Superior and the junction of the 45th degree of north latitude with the middle line of the St. Lawrence river, in accordance with the true meaning of the Treaty of 1783.

The commissioners were appointed, and by a report, dated June 18, 1882, they described the boundary line. The description is no more definite, so far as the Great Lakes are concerned, than was the treaty of 1783 (except in Lake Erie west of Middle Island), and a similar description to that in the Treaty is adopted in the report of the commissioners when describing the boundary line in those lakes. It is impossible from the report, to lay down with accuracy the boundary line in any of the waters covered by it. The commissioners appear to have ended their labours at the foot of Neebish rapids in St. Mary's river, not agreeing as to which channel the line should follow, going north from that point. However, they filed a map showing the line from a point near the head of Sugar Island through the river to a point opposite Gros Cap and Point Iroquois, the east end of Lake Superior. In their report they state that the boundary line as determined by them 'is more clearly indicated in a series of maps accompanying their report, exhibiting a correct survey and delineation of all the rivers, lakes, water communications and islands embraced by the sixth Article of the Treaty of Ghent, by a black line shaded on the British side with red and on the American side with blue, and each sheet of which series of maps is identified by a certificate subscribed by the commissioners and by the two principal surveyors employed by them.'

The commissioners, as stated in their report, prepared certain maps to accompany it, which it is understood were filed in London and in the office of the Secretary of State at Washington with quadruplicate reports. The records of the Secretary of State of Washington disclose maps, properly authenticated by the commissioners and the surveyors, showing the boundary line through the St. Lawrence river and as far as a point near and southwesterly from Duck Islands in Lake Ontario, through Niagara river to a point in the northeasterly end of Lake Erie about north of the mouth of Buffalo creek, in the city of Buffalo, from a point near, and southeasterly from Middle Island at the southwest end of Lake Erie to the mouth of the Detroit river, through the Detroit river, through Lake St. Clair and the St. Clair river to Lake Huron, and through Lake Huron to and into St. Marys river as far as the foot of Neebish rapids, also from a point about a mile above Sugar Island through the river to a point opposite Point Iroquois in Lake Superior. There are on file in the office of the Secretary of State of the United States unauthenticated maps showing what purports to be the boundary line through Lakes Ontario and Erie. This commission has not had an opportunity to consult the maps filed in London by the commissioners appointed under the treaty, but historical research indicates that there was no map of the boundary line in Lake Ontario from near Duck Islands to the mouth of the Niagara river, and no map of the boundary line in Lake Erie from about opposite the city of Buffalo to a point near and southeast of Middle Island, authenticated by the commissioners appointed under the Treaty of Ghent ; and it is clear that the commissioners did not agree upon the boundary line through Lake Superior, nor through the St. Marys river from the foot of Neebish rapids to a point near the head of Sugar Island. The maps of Lakes Huron, St. Clair and Superior are authenticated by the commissioners, but are so inaccurate that they are useless for the purpose of accurately determining the location of the boundary lines on them.

By the Treaty of Washington, ratified in 1842, Article 11, the boundary line from the point where the commissioners under the Treaty of Ghent ceased their labours, viz., at the foot of Neebish rapids, through St. Marys river and Lake Superior to Pigeon river at the westerly end of that lake, was described. In this article, maps of St. Marys river and Lake Superior are referred to as made by the commissioners under the Treaty of Ghent, and as having traced on them part of the boundary line in St. Marys river and the boundary line in Lake Superior to a point north of Isle Royale. These maps were made by the commissioners pursuant to Article VII. of the Treaty of Ghent.

Reference to the records in the office of the Secretary of State discloses maps of the boundary line described in the Treaty of Washington, certified by the commissioners appointed under the Treaty of Ghent and by Daniel Webster, Secretary of State of the United States, and Lord Ashburten, minister plenipotentiary of Her Majesty the Queen of the United Kingdom of Great Britain and Ireland, who negotiated and signed the treaty. These maps show the boundary line from the head of Muddy lake (now known as 'Mud' lake) through the St. Marys river to a point about a mile above the head of Sugar island, and from opposite Point Irroquois through Lake Superior to the Pigeon river.

As the office of the Secretary of State of the United States is the only proper place, in the United States, for deposit of the report and maps prepared by the commissioners appointed under the provisions of the Treaty of Ghent, the Commission concludes that there is no authoritative delineation of the boundary line through Lake Erie in existence unless a properly certified map was filed in London by the commissioners and is to be found there now. The commission would, however, suggest that as the dimensions of the Great Lakes and the contour of their shores had not been ascertained with any accuracy at the time the commissioners appointed under the Treaty of Ghent acted, it is highly improbable that any map prepared by them would be sufficient for the purpose of laying down the boundary line upon modern charts. The map of Lake Erie, on file in the office of the Secretary of State is an illustration; it plainly discloses that the dimensions of that lake and the contour of its shores were not known at the time it was prepared, for the lake itself appears on the map to be about eighteen miles too long, and, in one place, to be about sixteen miles wider than it actually is, with an average excess width of about six and a half miles; that is, its dimensions are so distorted that the location of the boundary line delineated upon it cannot be accurately ascertained and cannot be laid down upon modern charts without proceeding upon suppositions upon which it would be difficult or impossible to secure agreement by different engineers. The inaccuracy of this map is illustrated further hereafter.

There are in existence two official maps of Lake Erie which show a boundary line. These are, a chart prepared by the British Admiralty and a chart prepared by the Hydrographic office, Bureau of Navigation, Department of the Navy of the United States. The boundary lines as laid down upon these maps vary greatly from each other and neither one is so far authoritative as to be binding upon the United States and the Dominion of Canada. The British Admiralty map is projected, upon the polyconic system, the scale being 1 to 400,000 approximately, the Hydrographic chart being laid down on Mercator's projection.

The difficulty in ascertaining the exact location of the boundary on Lake Erie, from a point opposite Buffalo to the point near Middle Island, arises from the language of the Treaties of 1783 and 1814, as well as the language adopted in their report by the commissioners appointed under the latter treaty.

All these instruments define the boundary line as passing through 'the middle' of the lake. The expression used is subject to various interpretations :

It may mean :—

(*a*) A line being at all points equally distant from each shore.
(*b*) A line following the general lines of the shores and dividing the surface water area as nearly as practicable into two equal parts.
(*c*) A line along the mid-channel dividing the navigable portion of the lake, and being at all points equally distant from the shoal water on each shore.

It is to be observed that if the second interpretation above mentioned be adopted as governing the location of the boundary line, a question will arise, probably capable of being adjusted by compromise, as to how far the location of the line, 'following the general lines of the shores' would be affected by the projection known as Long Point.

It is also to be observed that it may be possible to establish a line which would not greatly differ from the lines which would result from the adoption of any of the above suggested interpretations and which would consist of the fewest possible number of straight lines. The great advantage of such a boundary is manifest as enabling fishermen and navigators to locate it with accuracy.

A line can be delineated upon modern charts, by agreement between the United States and Great Britain, so as to carry out the spirit of the Treaties of 1783 and 1814, accomplish a just division of the lake and present a practical boundary consisting of a few straight lines, the location of which at any point can be accurately ascertained when necessary, and which will not be confusing to fishermen or navigators. In the opinion of the commission such a boundary is the proper one, but no engineer can project it upon modern charts until it has been settled by a joint commission, inasmuch as it is possible to place several lines upon a modern chart, differing very considerably from each other.

Accurate charts of the Great Lakes, projected on the polyconic system upon a scale of 1 to 400,000, have been issued by the United States Lake Survey, and the commission, for the purpose of illustrating the difficulties in the way of ascertaining and delineating the boundary line on Lake Erie, has caused that line as laid down by the British Admiralty, together with the line as delineated by the Hydrographic Survey Office, to be drayn on the Lake Survey chart which accompanies this report and is marked 'A.'

To illustrate the absolute unreliability and inaccuracy of the map of Lake Erie on file in the office of the Secretary of State of the United States, the commission has prepared a copy thereof upon a reduced scale, which, by superposition upon the chart marked 'A,' will disclose the distortion of the lake's dimensions and the impossibility of reproducing upon the Lake Survey chart the boundary line as it appears on that map. This reduced map accompanies our report and is marked 'B.' It is projected upon the same system and as nearly as possible upon the same scale as chart 'A.' Map 'B' discloses that at the time it was made, the contour of the south shore of Lake Erie was pretty accurately known, but that knowledge of the north shore was very general, for, by placing map 'B' on chart 'A,' the south shore-line can be made to very nearly correspond, but, this being done, the north shore-line appears greatly out of place. The southwest end of Lake Erie was surveyed by the commissioners appointed under the Treaty of Ghent and consequently approaches correctness, but the boundary line at that end of the lake as delineated on the filed map of the entire lake cannot be made to correspond with that on the certified map of the southwest end. The map of the entire lake is, in fact, utterly worthless and cannot be used for the purpose of locating the boundary on chart 'A.'

Comparison of the Hydrographic and British Admiralty boundary lines, laid down upon their respective charts as transferred to the Lake Survey chart, shows very great discrepancies; they cross and recross each other, disclosing in some places conflicting jurisdiction, and in other places what appears to be neutral territory, over which neither country would have jurisdiction. In one place, southeast of Long Point, the line on the Hydrographic chart is about eight miles farther north than on the British Admiralty chart, showing conflicting jurisdiction, while at another point, southwest of Long Point, there is quite a long space between the lines, the Hydrographic line being about two miles south of the British Admiralty line at the widest point, thus apparently leaving a very considerable area not within the jurisdiction of either country. If we superpose map 'B' on chart 'A,' we find still further confusion, inasmuch as the shore line of Lake Erie as shown on map 'B' cannot be made to correspond with the shore-line on chart 'A.' No engineer is capable of reconciling these different lines upon any theory presented by the description in the Treaty of 1783, or by the Treaty of Ghent, or by the report of the commissioners appointed under the last named treaty, as those descriptions simply place the boundary line in 'the middle' of the lake. Interpretations of these descriptions by engineers will vary in accordance with the theories which they may adopt.

All the authentic maps of the lakes and the water communications between them, and of the St. Lawrence, are subject to the general criticism, that while most of the rivers were surveyed, and an attempt was made to lay down the boundary line on them and on the lakes, the maps do not represent present conditions with sufficient accuracy to prevent serious disagreement between surveyors who might attempt to delineate the boundary line on modern and accurate charts, and the lines surveyed were not sufficiently marked.

CONCLUSION.

The commission therefore concludes :

1. That the international boundary line on Lake Erie cannot be ascertained with any accuracy from existing data.

2. That the American and Canadian charts of Lake Erie, namely, the Hydrographic and British Admiralty charts, do not agree as to the distance to be logged from the gas buoy at Erie to the boundary line on the usual fishing ground.

RECOMMENDATIONS.

The ccommission would respectfully recommend :

1. That the entire boundary line from the point where the 45th parallel of north latitude meets the middle of the St. Lawrence river, through that river, the Great Lakes and connecting waters, in accordance with the true intent and meaning of the Treaties of 1783, 1814 and 1842, be located to accord as nearly as possible with the lines fixed by the commissioners appointed under the Treaty of Ghent, and the Treaty of 1842, be delineated upon modern charts, and be so described by reference to fixed monuments, where necessary, that it can in the future be relocated at any given point by survey.

2. That the location, delineation on modern charts and monumenting of the boundary line, proceed under the direction of this commission or another international commission to be appointed, and that when it is located, laid down on modern charts and monumented, that it be finally fixed and determined by treaty accordingly.

3. That this commission be authorized to locate, lay down upon a modern chart and monument the boundary line through Lake Erie.

All of which is respectfully submitted.

O. H. ERNST,
Brigadier-General, U.S. Army (retired),
Chairman, American Section.

GEO. C. GIBBONS,
Chairman, Canadian Section.

GEO. CLINTON,
Member American Section.

W. F. KING,
Member, Canadian Section.

E. E. HASKELL,
Member, American Section.

LOUIS COSTE,
Member, Canadian Section.

ATTEST :
W. E. WILSON,
Secretary, American Section.

ATTEST:
THOS. COTE,
Secretary, Canadian Section.

SESSIONAL PAPER No. 19

AMERICAN SECTION—SECOND PROGRESS REPORT—DECEMBER 1, 1906.

INTERNATIONAL WATERWAYS COMMISSION,
OFFICE OF CHAIRMAN AMERICAN SECTION,
ROOM 328, MILLS BUILDING ANNEX.
WASHINGTON, D.C., November 27, 1906.

Mr. SECRETARY : 1. The American members of the International Waterways Commission have the honour to submit the following progress report covering their work during the year ending December 1, 1906 :—

ORGANIZATION.

2. The commission suffered a very serious loss in the death at Detroit, on July 3 last, of Mr. George Y. Wisner, one of its most valued members. At its meeting in Toronto, July 24, it passed the following resolution, viz.:—

Resolved, That the members of the International Waterways Commission have heard with profound regret of the decease of their colleague, George Y. Wisner, Esq., on July 3, at Detroit, Mich. In the death of this eminent engineer the commission has lost an able adviser and a valued associate. Upon the great experience and acquirements of Mr. Wisner the commission always felt it could rely; his fairmindedness it has never doubted, and his devotion to his duties has ever assured his full and able performance of his duties as a commissioner. To his widow and family we extend our most sincere sympathy.

Mr. Wisner's place upon the commission was filled by the appointment of Mr. Eugene E. Haskell, dean of the civil engineering department of Cornell University. The secretary of the American section, Mr. L. C. Sabin, resigned in August to accept the position of superintendent of the Sault Ste. Marie Canal. He was succeeded by Mr. W. E. Wilson.

3. A change occurred also in the Canadian membership. Under date of November 18, 1905, Mr. J. P. Mabee was appointed judge of the Supreme Court of Judicature for Ontario, justice of the High Court of Justice of Ontario, and a member of the Chancery Division of the said High Court of Justice. He was succeeded as Chairman of the Canadian section of this commission by George C. Gibbons, Esq., of London, Ont.

4. The full commission has held eight, and the American section twelve, meetings during the year at Buffalo, Niagara Falls, Toronto, Chicago, and Washington, the sessions lasting from one to three days each. In the intervals between the meetings the collection and study of the data bearing upon the various questions before the commission were continued.

NIAGARA FALLS.

5. A joint resolution was passed by Congress, approved March 15, 1906, calling upon the American members 'to report to Congress at an early date what action is, in their judgment, necessary and desirable to prevent the further depletion of water flowing over Niagara Falls; and the said members are also directed to exert, in conjunction with the members of the said commission representing the Dominion of Canada, if practicable, all possible efforts for the preservation of said Niagara Falls in their natural condition.' The American members submitted a report dated March 19, 1906, which was forwarded by the Secretary of War, March 20, 1906, to the President, who submitted it to Congress with his message of March 27, 1906. It was published as Senate document No. 242, Fifty-ninth Congress, first session. It was

subsequently concurred in substantially by the Canadian members, and the joint report of the full commission dated May 3, 1906, was forwarded to Congress by the President with his message of May 7, 1906, and was published as Senate document No. 434, Fifty-ninth Congress, first session.

6. The report of March 19 was followed by an exhaustive investigation of the subject by the Rivers and Harbours Committee of the House of Representatives, who, during several weeks, held public hearings at Washington, at which all persons intereseed were given an opportunity to be heard, and who sent a subcommittee to Niagara Falls, where a thorough inspection of the works was made, and where also there was a public hearing. The result was a confirmation of the report in all essential particulars.

7. An 'Act for the control and regulation of the waters of Niagara River, for the preservation of Niagara Falls, and for other purposes,' approved June 29, 1906, was then passed by Congress. It authorizes the Secretary of War to grant permits for the diversion of water on the American side, and for the transmission of electrical power from Canada, under certain prescribed conditions and to certain prescribed limits. The total amounts authorized being considerably less than the amounts applied for by the power companies, a more detailed investigation, which should embrace particularly the commercial and financial side of the power-producing industry at Niagara Falls, became necessary to insure an equitable division of the amounts authorized. Capt. Charles W. Kutz, Corps of Engineers, U.S. Army, was detailed by the honorable Secretary of War to make the investigation. Four kinds of permits are authorized in the law. On August 15 he submitted a report upon permits for the transmission of electrical power to the United States from Canada, which was reviewed by us in our report dated September 29, 1906. On October 5 he submitted a report upon permits for the diversion of water on the American side, which was reviewed by us in our report of November 15, 1906.

CHICAGO DRAINAGE CANAL.

8. Any discussion of the preservation of Niagara Falls would have been incomplete without some reference to the Chicago Drainage Canal, which was designed to divert from the southern end of Lake Michigan 10,000 cubic feet per second of water naturally tributary to the falls. A discussion of the effect of such diversion upon water levels, and consequently upon the navigation interests of the Great Lakes and of the St. Lawrence Valley, could find no proper place in the Niagara Falls report. In recommending the allowance of 10,000 cubic feet per second to the Chicago Drainage Canal the commission ignored those important questions. It believed, in so doing, that it was accepting a general tacit agreement that some such amount was required to protect the health of Chicago, and that the city should have it without further question, whatever the effect upon navigation might be. It believed also that the amount was all that Chicago asked or desired. It turns out that in this latter respect it was mistaken. Plans are on foot at Chicago which calls for a much larger amount at present and for amounts in the future to which no limit is assigned. The commission has collected a large amount of information upon the subject and has held public hearings at Buffalo and Chicago, but its investigations are not entirely completed. It will at an early day submit a full report upon the subject.

SAULT STE. MARIE.

9. On May 3 the commision submitted to the two governments a joint report upon the conditions existing at Sault Ste. Marie, in which were the following recommendations, viz.:—

1. That no permits shall be granted for the use of the waters of St. Marys River, or for the erection of structures in, under, or over, or the occupation in any manner of, the said waters until plans have been submitted to the commission for its investi-

gation and recommendation, and the use of the waters under such permits shall not be allowed except upon compliance with the rules hereinafter recommended.

2. The commission further recommends that no grants, permits, or concessions should be made, which directly or by operation of law, may, in any manner, affect the right of the United States or Canada, to control the bed of the St. Marys River, below high-water mark, and especially that none should be made which, legally or equitably, may be the means of adding to the expense of acquiring lands or rights for the purpose of making improvements in aid of navigation, or which may give an equitable right to compensation in case of the removal of structures in said river.

3. That steps be taken to increase the lockage facilities at the Sault Ste. Marie without unnecessary delay.

4. That the governments of the United States and Canada reserve all water necessary for navigation purposes, at present or in the future, and the surplus shall be divided equally between the two countries for power purposes.

5. As the commission regards the interests of the United States and Canada in the preservation of the lake levels, and in the improvement of the channels and the conservation of the water supply for purposes of navigation as identical and as incapable of efficient protection without joint and harmonious action on the part of the two governments, it recommends that the rules hereinafter set forth be adopted, and that a joint commission be created to supervise their enforcement, or that such powers be vested in the existing International Waterways Commission, subject to such restrictions and reservations as may be deemed advisable.

The report was approved by the honourable Secretary of War and by him transmitted to the honourable Secretary of State with the following indorsement, dated May 14, 1906, viz.:—

Respectfully referred to the Secretary of State with a request that after the report be read it be forwarded to the President as a basis for negotiations looking to the adoption of a treaty carrying into effect the recommendations of the International Waterways Commission, the report of which is approved so far as this department is concerned.

Embodied in the report were a series of rules and regulations to govern the use of water at the Sault. As the enforcement of these rules involves the creation of a permanent international commission, they have not as yet been put in force. It is to be presumed that provision for a permanent commission will be arranged in a treaty.

A full copy of the report is already published.

MINNESOTA CANAL AND POWER COMPANY.

10. The Minnesota Canal and Pawer Company, a corporation organized under the laws of Minnesota, proposes to construct reservoirs in the Birch Lake basin in Minnesota, in which water is to be stored, and from which it is to be released as needed, and conducted by artificial and natural channels southward to Duluth, where it is to be employed for generating electrical power. The natural drainage of the Birch Lake basin is northward into the Rainy river, Lake of the Woods, Winnipeg river, Winnipeg lake, and finally into the Hudson bay; the water thus forming a part of the international boundary and finally entering territory which is exclusively Canadian. The company applied to the Department of the Interior for permission to use certain public lands by flowage and otherwise. The attention of the commission was drawn to the matter immediately after its organization, as was stated in our last annual report, but the commission had at that time doubts about its jurisdiction in the case, inasmuch as the waters were not naturally tributary to the Great Lake system. This doubt was dispelled by a letter from the honourable Secretary of State to the honouroble Secretary of War, dated May 14, 1906,in which he requested that the matter be referred to the commission.

DEPARTMENT OF STATE,
WASHINGTON, May 14, 1906.

SIR,—I have the honour to inclose herewith copy of a letter from the Secretary of the Interior with reference to correspondence had with this department relative to the application of the Minnesota Canal and Power Company for right of way privileges in the State of Minnesota, under the provisions of the Act of February 15, 1901 (31 Stat., 790).

Inviting attention to the second paragraph of Mr. Hitchcock's letter, I have the honour to request that the matter be referred to the International Lake Levels Commission for an expression of its views.

I have the honour to be, sir, your obedient servant,

ELIHU ROOT.

The Honourable the Secretary of War.

11. After several public hearings and a careful examination of all the documents in the case, the number of which is very great, the commission rendered a joint report to the two governments, dated November 15, 1906 (copy appended marked 'C,' in which are the following conclusions and recommendations, viz :—

1. While the work proposed by the applicant will be of great advantage to the interests served, it will interfere with public and private interests in Canada, and the commission see no public necessty for it.

2. The proposed diversion will injure the interests of various classes of persons, namely, residents of the United States having property rights in the State of Minnesota, residents in the United States having property rights and interests in Canada and in the boundary waters, residents of Canada having property rights and interests in Canada, and municipalities in the Dominion of Canada. The rights and interests which will be affected are divisible into two classes, namely, those which depend upon navigation directly or indirectly, and those which depend upon the use of waters of the various streams and lakes for power purposes.

3. The proposed diversion will affect injuriously navigation upon the boundary waters between the United States and Canada, above mentioned, and upon navigable waters in Canada connecting said boundary waters; but

4. So far as water-power interests on the international boundary or in Canada are concerned, which depend upon the supply from Birch lake drainage area, although remedial works at locations above Rainy River may be constructed, the total amount of water which can be stored and used for power purposes upon the boundary and connecting waters located wholly in Canada will be diminished.

5. The applicant, the Minnesota Canal and Pawer Company, of Duluth, Minn., under the decision of the supreme court of Minnesota, above cited, apparently has not the power to utilize the permit it seeks to obtain, but possibly may acquire that power. It would seem, therefore, that the permit which the applicant seeks, ought not in any case to be granted before it secures authority under the laws of Minnesota to utilize it.

6. That the rights and interests of the residents of Minnesota which may be affected by the proposed diversion, are of so much less importance than the interests which will be promoted by the proposed works of the applicant, that they do not furnish a sufficient reason for refusing the permit sought, inasmuch as full compensation must be made to such persons under the laws of Minnesota.

7. Neither the State of Minnesota nor the United States can provide adequate means by which money compensation can be ascertained and made to the owners of the interests in Canada which may be injured, and it follows that individuals sustaining injury would be relegated to litigation. This is a violation of the principle of law that private property shall not be taken for public use, unless provision for compensation can be made without litigation and its attendant delays and expense.

8. So far as remedial works are concerned, it is sufficient to say that there is no jurisdiction in the United States or in the State of Minnesota to provide for or permit the erection of the necessary remedial works in Canada.

9. That although it might be advisable to grant the permit applied for, in case the applicant should acquire the powers necessary to utilize it, if objections arising from international relations did not exist, treaty provisions, international comity, and the impossibility of providing just means of assuring adequate compensation for injury to interests in Canada, or of preserving navigation unimpaired on the boundary streams, without concurrent action of both governments concerned, lead us to the conclusion that the permit should not be granted unless the full protection of all interests not cared for by the laws of Minnesota, be secured by concurrent action of the United States and Canada.

1. The commission would therefore recommend that the permit applied for be not granted without the concurrence of the Canadian government.

2. As questions involving the same principles and difficulties, liable to create friction, hostile feelings, and reprisals, are liable to arise between the two countries, affecting waters on or crossing the boundary line, the commission would recommend that a treaty be entered into which shall settle the rules and principles upon which all such questions may be peacefully and satisfactorily determined as they arise.

3. The commission would recommend that any treaty which may be entered into should define the uses to which international waters may be put by either country without the necessity of adjustment in each instance, and would respectfully suggest that such uses should be declared to be :

(*d*) Use for necessity domestic and sanitary purposes.

(*b*) Service of locks used for navigation purposes.

(*c*) The right to navigate.

4. The commission would also respectfully suggest that the treaty should prohibit the permanent diversion of navigable streams which cross the international boundary or which form a part thereof, except upon adjustment of the rights of all parties concerned by a permanent commission, and with its consent.

RICHELIEU RIVER AND LAKE CHAMPLAIN.

12. The International Development Company, a corporation organized under the laws of Canada, proposes to deepen the Richelieu river and regulate its flow so that there shall be a uniform discharge of at least 9,000 cubic feet per second throughout the year. For this purpose it proposes to use Lake Champlain as a reservoir, in which the surplus water is to be stored during the wet season, and from which it is to be released as needed during the low water period. The works are to be located in Canadian territory, but the company desiring to ascertain the probable attitude toward them of the United States government, submitted to the War Department a preliminary statement, without plans, showing in general what it proposed to accomplish. The matter was referred to the International Waterways Commission by indorsement of the honourable Secretary of War, dated November 6, 1906. The commission found that a uniform flow of 9,000 cubic feet per second could not be maintained at all seasons and in all years without giving to Lake Champlain a range, between extreme high and extreme low water, which they deemed inadmissible; but that it would be possible to plan works which would not injuriously affect Lake Champlain and would materially improve the conditions of the flow in the Richelieu river.

Under date of November 15, 1906, it submitted a joint report to the two governments, from which the following is an extract, viz.:—

As Lake Champlain is wholly within the territory of the United States, and the proposed works are wholly within Canadian territory, the international questions raised are of some moment. It is, in our opinion, not desirable that either nation should obstruct the natural flow of streams crossing the international boundary to

the injury of public or private rights in the other. It is manifest, therefore, that the applicants should furnish conclusive evidence that private rights in the states of New York and Vermont adjoining Lake Champlain will not be injuriously affected by the alteration of the lake level as proposed, and that as the Secretary of War of the United States has control of the interests of navigation on Lake Champlain, the said work should not be undertaken without his permission, and should be operated under such regulations as he may direct, with a view to the maintenance of the level of the said lake as the interests of navigation thereon may require. It would be possible to plan works adapted to the conditions, and in our opinion such works should be permitted, provided they do not interfere with privite interests in the United States and meet with the approval with the Secretary of War as suggested. We respectfully submit that in any treaty to be had between the two nations in relation to the use of international waters the principles above suggested should have consideration. We would further suggest that the applicant's Canadian Act of incorporation should be amended so as to provide that the maintenance of the works sought to be erected shall be conditional at all times upon compliance with all regulations imposed by the Secretary of War of the United States of America from time to time for the preservation of the levels of Lake Champlain.

INTERNATIONAL BOUNDARY IN LAKE ERIE.

13. In August last a large number of nets were placed in Lake Erie by the Keystone Fish Company, of Erie, Pa., near the middle of the lake, but on what they claim is the American sidet of the boundary. Most of these nets were promptly seized and confiscated by the Canadian vessel *Vigilant*...The commander of the *Vigilant* then proposed to the American fishermen to show them the boundary, and aid them in marking it with buoys, so that they might always remain on their own side of the line if they desired to do so. The proposal was forwarded to the honourable Secretary of State and by him to the honourable Secretary of War, under date of September 5, 1906, with the request that it 'be referred to the International Waterways Commission with the inquiry whether it is known that the American and Canadian charts of the locality agree as to the distance to be logged from the gas buoy at Erie to the boundary line on the usual fishing grounds.'

14. It has been necessary to reduce the various charts upon which the boundary is marked to the same system of projection and the same scale in order to compare them, and this has required much time. The British Admiralty chart and the United States Lake Survey chart are projected on the polyconic system; the Hydrographic chart issued by the United States Navy Department is projected upon the Mercator system; while the chart on file in the State Department with the Treaty of Ghent, as near as can be asceretained, is on the plane rectangular system; with one exception, each is of a different scale from any other. It is found that the boundary as laid down on the United States Hydrographic chart differs widely from that on the British Admiralty chart. They both derive their authority from the Treaty of Ghent. The map on file with the treaty is so inaccurate that no two persons would probably transfer the boundary line marked thereon to a modern chart in the same way. It is, in fact, worthless for its purpose. The only guide for the location of the boundary in Lake Erie, except at the eastern and western extremities, is in the expression in the text of the treaty 'through the middle of the said lake.' Under that description a variety of lines may be laid down. The commission expects to complete and forward its report upon the subject at an early day.

DETROIT RIVER TUNNEL.

15. The plans of the Detroit River Tunnel Company for the construction of a tunnel under the Detroit river having been referred to the commission, it passed at its session of March 7, 1906, at Toronto, the following resolution, viz. :—

'That the International Waterways Commission approve of the plans of the construction of a tunnel under the Detroit river prepared by the Detroit River Tunnel Company, and submitted to the commission by the Chief of Engineers of the United States Army under date of February 13, 1906, and by the Minister of Marine and Fisheries for Canada under date of November 16, 1905, the construction to be carried on on the American side under the regulations contained in the report of the Board of Engineers of the United States Army of date, January 26, 1906, and that the same be carried on on the Canadian side under regulations to be fixed by the Minister of Public Works and the Minister of Marine and Fisheries.'

SUMMER RESORT NEAR LONG SAULT RAPIDS.

16. Under date of May 28, 1906, Mr. Smith L. Dawley, of Ogdensburg, N.Y., addressed a letter to the honourable Secretary of War applying for permission to construct dikes, retaining walls and such other structures in the River St. Lawrence, near Long Sault Island, as should be necessary to create an 'attractive summer resort with navigable approaches thereto and the development of a water-power.' By indorsement, dated June 2, 1906, the paper was referred to the commission. It was not accompanied by any plans, but had with it a rough sketch upon a small-scale chart with a meagre written description which did not conform to the chart. The commission, not having information at hand sufficient to justify a recommendation, promptly notified Mr. Dawley of the deficiency and requested him to provide it with a complete description of his plans. This has not as yet been done.

BUFFALO INLET PIER.

17. At its session in Buffalo on the 26th of June representatives of the city appeared before the commission, and requested its approval of the location of a new inlet pier for the city waterworks, which it was desired to place in the international waters on the Canadian side of the boundary. Although the question had not been regularly brought before it by higher authority, the commission thought it proper, with a view to avoiding delay, to pass the following resolution, viz. :—

'That in the opinion of the International Waterways Commission, the tunnel and inlet pier proposed to be constructed in Lake Erie by the city of Buffalo, for the purpose of furnishing a pure water supply to the city, can be built without injury to navigation or other public interests, and it is recommended that permits for the construction of these works be granted, with the proviso that the inlet pier be kept properly lighted at night at the expense of the city.'

MASSENA WATER POWER COMPANY.

18. Under date of April 4, 1906, the Calvin Company, Limited, addressed a letter to the Minister of Public Works of Canada, protesting against the closure by a dam of the south channel at Long Sault Island, which it understood was contemplated by an American corporation. This letter was referred to the commission. A work such as that described could not be constructed without permission from the War Department of the United States. It was found that no permit had been granted, and that no application for one was at that time pending.

REGULATION OF LAKE ERIE.

19. Much study has been given to this important problem, but the commission is not as yet prepared to report upon it. A large amount of new data has recently been collected by the office of the United States Lake Survey at Detroit, of which a careful study is necessary to a proper solution of the question.

LEGISLATION SUGGESTED.

20. Under the law of Congress creating the commission, its jurisdiction is limited to the waters whose natural outlet is by the River St. Lawrence to the Atlantic ocean. The Canadian government has from the beginning desired that the commission should consider all questions which may arise concerning the international waters from the Atlantic to the Pacific. To enable the American members to do this, further legislation by Congress is necessary. It would seem proper to comply with the wishes of the Canadian government in this respect.

Yours respectfully,

O. H. ERNST, *Chairman,*
GEORGE CLINTON, *Member,*
E. E. HASKELL, *Member.*

Hon. WM. H. TAFT,
Secretary of War, Washington, D.C.

At page 97 and following pages, will be found the detail correspondence.

SESSIONAL PAPER No. 19

REPORT OF THE AMERICAN SECTION ON THE PRESERVATION OF NIAGARA FALLS.

Message from the President of the United States, transmitting the Report of the American Members of the International Waterways Commissions, with letters from the Secretary of State and the Secretary of War, including Memoranda regarding the Preservation of Niagara Falls.

March 27, 1906.—Read ; referred to the Committee on Foreign Relations and ordered to be printed.

To the Senate and House of Representatives :

I submit to you herewith the report of the American members of the International Waterways Commission regarding the preservation of Niagara Falls. I also submit to you certain letters from the Secretary of State and the Secretary of War, including memoranda showing what has been attempted by the Department of State in the effort to secure the preservation of the falls by treaty.

I earnestly recommend that Congress enact into law the suggestions of the American members of the International Waterways Commission for the preservation of Niagara Falls, without waiting for the negotiation of a treaty. The law can be put in such form that it will lapse, say in three years, provided that during that time no international agreement has been reached. But in any event I hope that this nation will make it evident that it is doing all in its power to preserve the great scenic wonder, the existence of which, unharmed, should be a matter of pride to every dweller on this continent.

THEODORE ROOSEVELT.

The White House, March 27, 1906.

Department of State,
Washington, March 24, 1906.

Dear Mr. President,—I return the letter of the Secretary of War with the report of the American members of the International Waterways Commission, regarding the preservation of Niagara Falls.

I think the legislation recommended by the commission would be very useful.

Faithfully yours,

ELIHU ROOT.

War Department,
Washington, March 20, 1906.

My Dear Mr. President,—I herewith transmit, for submission by you to Congress, the report of the American members of the International Waterways Commission, made by them in accordance with the joint resolution approved March 15, 1906,

and set out in their report. The recommendations of the commission of legislation necessary and desirable to prevent the further depletion of water flowing over the Niagara Falls suggests the question whether such legislation is within the limitations of the legislative power of Congress, when applied to non-navigable parts of a stream which is within the borders of a state and which is only partly navigable, if the use of the water to be inhibited does not affect navigation in the navigable part of the stream below. It would seem that the treaty power exercised by the President and Senate with respect to a stream which forms the boundary between this country and another, would be subject to less limitation in this regard than the legislative power of Congress, and therefore that it might be more advisable to effect the result sought by Congress through a treaty than through a statute.

Very respectfully,

WM. H. TAFT,
Secretary of War.

The PRESIDENT.

REPORT OF THE AMERICAN MEMBERS OF THE INTERNATIONAL WATERWAYS COMMISSION REGARDING THE PRESERVATION OF NIAGARA FALLS.

INTERNATIONAL WATERWAYS COMMISSION,
OFFICE OF CHAIRMAN AMERICAN SECTION,
WASHINGTON, D.C., March 19, 1906.

SIR,—1. The American members of the International Waterways Commission have the honour to submit for transmittal to Congress this report, in compliance with the following joint resolution approved March 15, 1906 :—

'Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That the members representing the United States upon the International Commission created by section four of the River and Harbour Act of June thirteenth, nineteen hundred and two, be requested to report to Congress at an early day what action is in their judgment necessary and desirable to prevent the further depletion of water flowing over Niagara Falls ; and the said members are also requested and directed to exert, in conjunction with the members of said commission representing the Dominion of Canada, if practicable, all possible efforts for the preservation of the said Niagara Falls in their natural condition.'

2. The surplus waters of Lake Erie are discharged through the Niagara river into Lake Ontario, the mean level of Lake Erie being 572.86 feet and that of Lake Ontario being 246:61 feet above the sea. Leaving Lake Erie at Buffalo, the river is navigable and flows with a moderate slope to a short distance below Welland river, or Chippewa creek, about 19 miles, in which distance it has a fall of about 14 feet. The slope here is suddenly increased and the river ceases to be navigable. In the next half mile it has a fall of about 50 feet, forming the rapids above the falls. It is divided by Goat Island into two arms of unequal size, that on the Canadian side carrying about seven times the volume of water carried by that on the American side. At the foot of Goat Island the waters of both arms plunge over a vertical precipice, constituting Niagara Falls proper, that on the Canadian side being usually known as the Horseshoe Fall, and that on the American side as the American Fall. The height of the Horseshoe Fall is about 161 feet, and that of the American Fall 165 feet. Immediately below the falls the river is again navigable for a short distance, and then assumes the character of rapids as far as Lewiston, 7 miles from Lake Ontario, where it again becomes navigable and remains so until it enters the lake.

3. The volume of water flowing varies with the level of Lake Erie, which level is subject to variations of several feet, depending upon the rainfall, barometric pressure, and direction and force of the wind. At the mean level of the lake (elevation 572.86) the volume of discharge is 222,400 cubic feet per second. At a very low stage (elevation 571) the volume is 180,800 (see Annual Report, Chief of Engineers, U.S. Army, for 1900 p. 5361. For short periods in midwinter or with prolonged adverse winds, it has sometimes been even less.

4. It is the great volume of water in the falls themselves and in the rapids which makes the place unique. The tremendous display of power in wild turbulence fascinates the mind, and gives to the question of Niagara's preservation a national interest.

5. The local authorities on both sides of the river have recognized their responsibilities in this matter, but have taken somewhat different views as to what these responsibilities are. As long ago as 1883 the state of New York provided for the acquisition of the lands in that state adjoining the falls, with a view to creating a public park, and in 1885 it declared that these lands 'shall forever be reserved by the state for the purpose of restoring the scenery of the falls of Niagara to and preserving it in its natural condition, they shall forever be kept open and free of access to all mankind without fee, charge or expense to any person for entering upon or passing to or over any part thereof.' A commission of five was created to carry out the purposes of the Act. The state reservation now includes 412 acres, part of which is under water, and an annual appropriation of some $25,000 is made for its care and maintenance. The commission has no jurisdiction beyond the limits of the reservation, but it has never throughout its existence failed to protest and bring all its influence to bear against the depletion of the falls by the abstraction of water above and beyond the limits of the reservation. Nevertheless, the state legislature has granted numerous franchises for the diversion of water, as will appear further on.

6. Soon after the creation of the New York state reservation a public park was created on the Canadian side, called the Queen Victoria Niagara Falls Park, and was placed under the control of five commissioners. This park now extends practically the whole length of the Niagara river from Lake Erie to Lake Ontario, and embraces an area of about 734 acres. By an Act of the Ontario legislature (62 Victoria, cap. 11), it was enacted that 'the said commissioners, with the approval of the lieutenant-governor in council, may enter into an agreement or agreements with any person or persons, company or companies, to take water from the Niagara river or from the Niagara or Welland rivers at certain points within or without the said park for the purpose of enabling such person or persons, company or companies, to generate within or without the park electricity, or pneumatic, hydraulic or other power conducting or discharging said water through and across the said park or otherwise in such manner, for such rentals, and upon such terms and conditions as may be embodied in the agreement or agreements and as may appear to the lieutenant-governor in council to be in the public interest.' In 1903 this Act was amended by adding thereto the words 'but no such agreement shall be operative unless and until ratified and confirmed by the legislative assembly' (3 Edward VII., chap. 7). Inasmuch as the park receives no aid from the legislature in the way of annual appropriations for its support, the commissioners have felt justified in using with some freedom the power thus granted in order to obtain a revenue for the general improvement and maintenance of the park. Prior to the amendment of 1903, they entered into four important agreements for the diversion of water, and caused an investigation to be made as to the availability of additional sites for power works. Two of these agreements were with a single corporation, which has thus far utilized only one.

7. The great water power available at Niagara Falls naturally attracted the attention of engineers at an early day, but it was not until it could be transmitted and used in the form of electricity that its development on a large scale became finan-

cially practicable. There are now five principal corporations engaged in furnishing or preparing to furnish electricity for commercial purposes, obtained from the water-power, two of them located on the American and three on the Canadian side. A brief description of each is here given. A map showing their location is submitted herewith. It is to be remarked that none of the diversions have been sanctioned by the United States government.

8. *I. Niagara Falls Hydraulic Power and Manufacturing Company.*—This company was organized in 1877 under the general laws of the state of New York. It purchased a canal which had been constructed before the civil war, leading from Port Day, above the falls, through the city of Niagara Falls, to the edge of the cliff below the falls, where a grist mill had been established. (See map.*) The length of this canal was about 4,400 feet, its width 36 feet, and its depth 8 feet. A width of 70 feet and depth of 10 feet had been projected. In 1881 the company established its first station for supplying electricity for lighting, this being the first public distribution for commercial purposes of electricity derived from Niagara Falls. The increasing demand for electricity and the improved methods of transmitting it led to a steady development of the works of this company and to the establishment of others. In 1895 an important enlargement of the canal having been begun, the right of the company to take water from the river was questioned by the commissioners of the state reservation at Niagara. An opinion was obtained from the attorney general of the state of New York (copy appended marked 'A') in which it was held that the Niagara river is a navigable river in law, that the company had no right to increase the capacity of its canal, that it had no right to divert any water from the river, and that a diversion of water sufficient to diminish the flow over the falls was a nuisance and could be restrained.

The New York legislature thereupon passed an Act (chap. 968, laws of 1896), in which the right of the company 'to take, draw, use, and lease and sell to others to use the waters of Niagara river for domestic, municipal and sanitary purposes, and to develop power therefrom for its own use and to lease and sell to others to use for manufacturing, heating, lighting and other business purposes, is hereby recognized, declared and confirmed.' No limit as to the time during which these rights were to exist was fixed, but the amount of water to be taken was limited to that which could be drawn by a canal 100 feet wide, with such depth and slope as would maintain at all times a depth of 14 feet. The amount of water thus described is not specific. It is computed to be about 9,500 cubic feet per second for the works now under construction, but it would be possible to construct works under different plans which would use a much greater quantity of water. The company is now using about 4,000 cubic feet per second. It is extending its works, and expects to develop about 134,000 horse-power, in addition to which its tenant companies will develop about 8,000 horse-power. It has paid nothing to the state for its privileges. A list of the more important industries which this company supplies with electricity is given in Appendix B. Its managers estimate that the power plant and the industries dependent upon it for power represent an investment of $10,000,000.

9. *II. Niagara Falls Power Company.*—In 1886 the New York legislature granted a charter to a company called the 'Niagara River Hydraulic Tunnel Power and Sewer Company of Niagara Falls,' subsequently amended in 1886, 1889, 1891, 1892 and 1893. (See chapter 83, 1886; chapter 489, 1886; chapter 109, 1889; chapter 253, 1891; chapter 513, 1892; chapter 477, 1893.) In 1889 the name of the company was changed to 'The Niagara Falls Power Company.' It is authorized to take water sufficient to generate 200,000 horse-power, computed to be about 17,200 cubic feet per second. Its franchise is for fifty years from March 31, 1886. The location of its works is shown upon the map. Beginning about a mile above the falls a short intake canal is constructed nearly at right angles with the river shore. Upon each side of the canal deep pits are excavated in the rock, at the bottom of which are placed the turbines, and over which

* Not published with this report.

are placed the power-houses. The water, after passing through the turbines, is carried off by a tunnel about 21 feet in diameter under the city of Niagara Falls to the lower river, a distance of about 7,000 feet. The company has in operation two power-houses having a combined capacity of about 105,000 horse-power.

It is working the plant nearly to its full present capacity, using about 8,000 cubic feet per second, in addition to which one of its tenant companies is using about 600 cubic feet. It paid nothing to the state for its privileges, but is bound to furnish free of charge electricity for light and for power and also water for the use of the state in the state reservation at Niagara and the buildings thereon, when requested to do so by the commissioners of the state reservation. It distributes electric power over a wide area of territory and to a great variety of commercial interests in Niagara Falls, Tonawanda, Olcott, and Buffalo, in some cases over 35 miles distant. A list of the consumers dependent upon this company is given in Appendix C. The investment is stated by the managers to be over $6,000,000 in the power plant, and $7,000,000 or $8,000,000 in other industries established on its lands at Niagara Falls and dependent upon it.

10. *III. Canadian Niagara Power Company.*—This company is an allied company of the Niagara Falls Power Company just described. It was incorporated by an Act of the legislature of the province of Ontario in 1892, which also confirmed an agreement dated April 7, 1892, between the company and the commissioners for the Queen Victoria Niagara Falls Park. In 1899 an Act was passed conferring upon those commissioners authority to modify this agreement and to make other agreements for the construction of power works, as specified above. The agreement was modified July 15, 1899,and June 19, 1901.

11. The company is authorized to construct certain works, which works will have a capacity of 110,000 horse-power, and by inference to take the quantity of water required for that purpose, although the agreement does not in terms limit the capacity of the works or the quantity of water. The amount required to supply the works which have been approved and are under construction is computed to be about 9,500 cubic feet per second. The location of the works is shown upon the map. They are of the same general type as those of its allied company on the American side. Water is taken from the river about a quarter of a mile above the falls through a short canal and fore bay and discharged through penstocks into turbines near the bottom of a deep wheel pit excavated in the solid rock, over which is placed the power-house. After passing through the turbines, the water is carried off by a tunnel about 2,000 feet long, and discharged into the river below the falls. The works are not completed, and less than half of the generators have been installed, the quantity of water used thus far being about 2,600 cubic feet per second. They are operated in connection with those of the allied company on the American side. They represent an investment of several million dollars.

12. The company agrees to pay for its privileges an annual rental of $15,000, for which it may generate 10,000 electrical horse-power or less ; for all above 10,000 and under 20,000 horse-power it pays in addition to the above $1 per annum for each horse-power; for all above 20,000 and under 30,000 it pays a further sum of 75 cents per annum for each horse-power ; and for all above 30,000 it pays a still further sum of 50 cents per annum for each horse-power ; that is to say, the annual rental for generating 30,000 horse-power will be $32,500, and for generating 110,000 horse-power will be $72,500.

13. The period for which the privileges are granted is fifty years from May 1, 1899, but the company is entitled, at its option, to three renewals of twenty years each, the rentals to be adjusted at the time of each renewal, if the lieutenant-governor in council so desires, and at the end of the third renewal the lieutenant-governor in council may require a still further renewal of twenty years ; the entire period thus covered by the agreement being one hundred and thirty years.

14. *IV. Ontario Power Company.*—This company was incorporated by an Act of the Dominion Parliament in 1887, and was empowered to take water from the Welland

river, or Chippewa creek, near its mouth at Chippewa—that is, indirectly from the Niagara river. On the 11th of April, 1900, it entered into an agreement with the park commissioners to construct works for that purpose, but before progressing far in the work of construction it changed its plans, and on the 28th of June, 1902, it made another agreement with the commissioners, under which it is now working. It claims that the first agreement is still valid and may be utilized hereafter if the company so desires. Under the agreement of June 28, 1902, the company is authorized to construct works according to certain plans submitted, which works will have a capacity of 180,000 horse-power, and by inference to take the quantity of water required for that purpose, although the agreement does not in terms limit the capacity of the works or the quantity of water. The amount required to supply the works, which have been approved and are under construction, is computed to be about 12,000 cubic feet per second. The location of the works is shown upon the map. Water is taken from the river at Dufferin Island, about half a mile above the intake of the Canadian Niagara Power Company, or three-quarters of a mile above the falls, and after passing through an elaborate system of screens enters a gatehouse, and thence is transmitted through three underground conduits, each 18 feet in diameter, to a power-house located near the foot of the cliff below the falls. The length of the pipe line to the nearest penstock is 6,180 feet, and to the most distant penstock about 1,000 feet more. The works, which represent an investment of several million dollars, are not completed, only about 2,000 cubic feet per second now being used.

15. The company agrees to pay for its privilege an annual rental of $30,000, for which it may generate 20,000 electrical horse-power or less. For all above 20,000 and under 30,000 horse-power it pays, in addition to the above, $1 per annum for each horse-power; for all above 30,000 and under 40,000 it pays a further sum of 75 cents per annum for each horse-power, and for all above 40,000 it pays a still further sum of 50 cents per annum for each horse-power; that is to say, the annual rental for generating 40,000 horse-power will be $47,500, and for generating 180,000 horse-power will be $117,500.

16. The period for which the privilege is granted is fifty years from April 1, 1900, but the company is entitled, at its option, to three renewals of twenty years each, and after the third renewal the lieutenant-governor in council may require a fourth renewal of twenty years, the rentals to be adjusted at each renewal, the entire period thus covered by the agreement being 130 years.

17. *V. Electrical Development Company.*—On the 29th January, 1903, the commissioners for the Queen Victoria Niagara Falls Park entered into an agreement with three citizens of Canada, subsequently transferred to 'The Electrical Development Company of Ontario (Limited),' incorporated by Act of the legislature of Ontario. (5 Edward VII., chap. 12.) Under this agreement authority was given to take from the Niagara river, water sufficient to develop 125,000 electrical horse-power. The amount is computed to be 11,200 cubic feet per second. The location of the works is shown upon the map. Water is taken from the river about midway between the intakes of the Canadian Niagara Power Company and of the Ontario Power Company, or about half a mile above the falls. A gathering dam, about 750 feet long, extends out into the river obliquely upstream, designed to divert the required amount of water into the power-house, which is located upon the original shore line. Under the power-house is a wheel pit, excavated in the solid rock to a depth of 158 feet, at the bottom of which are placed the turbines. After passing through the turbines the water is conveyed by a tunnel to the base of the falls and discharged about midway between the Canadian and American shores. The works are not completed, and no water is now being used. They represent an investment of several million dollars.

18. The company agrees to pay for its privileges an annual rental of $15,000, for which sum it may generate 10,000 electrical horse-power or less; for all above 10,000 and less than 20,000 horse-power it pays, in addition to the above, $1 per annum for each horse-power; for all above 20,000 and less than 30,000 it pays a fur-

ther sum of 75 cents per annum for each horse-power; and for all above 30,000 it pays a still further sum of 50 cents per annum for each horse-power; that is to say, the annual rental for generating 30,000 horse-power will be $32,500, and for generating 125,000 horse-power will be $80,000.

19. The period for which the privilege is granted is fifty years from February 1, 1903, but the same provisions are made for renewals as in the cases of the other companies, and the entire period covered by the agreement is thus one hundred and thirty years.

20. In the case of each of the Canadian companies the authorities reserve the right to require that one-half the power generated shall be supplied to places in Canada.

21, Water is diverted also by the Park Electric Railway, under authority of the commissioners, the quantity to be used under plans now in execution being estimated at 1,500 cubic feet per second, developing about 8,000 horse-power, while the actual present use is about 600 cubic feet per second.

22. In addition to the foregoing, six charters were granted by the New York legislature between the years 1886 and 1894 to corporations organized to take water from the Niagara river, but it is believed that all, with the possible exception of two, have expired by limitation. In one case, the Niagara, Lockport and Ontaro Power Company, an Act to renew passed the legislature in 1904, but was vetoed by Governor Odell in his message of May 14 of that year. The company, however, claims the rights granted under its original charter, and is constructing works for the distribution of electrical energy developed by other companies, but is not itself diverting water. Another corporation, the Niagara County Irrigation and Water Supply Company, has done some work, and claims that its charter has thus been preserved, but it has diverted no water. A list of these charters is given in Appendix D.

23. The Dominion of Canada has granted charters to two corporations in addition to those already mentioned, organized to take water from the Niagara river for power purposes. It has chartered two other corporations, organized to take for power purposes water from Lake Erie, which would naturally be tributary to the Niagara river. These companies have not finally developed their plants, and it is believed that their franchises are therefore not perfected, although all but one are still in force. In one case the charter has expired by limitation. The charters fix no limit to the amount of water which may be used. A charter was granted in 1889 by the province of Ontario to the Hamilton Cataract, Power, Light and Traction Company. This company is using water from the Lake Erie level of the Welland Canal, which water would otherwise be tributary to the Niagara river. The volume now being used is estimated at about 1,800 cubic feet per second, and is to be increased. A list of these charters will be found in Appendix E.

24. The Chicago Drainage Canal, constructed under the authority of the State of Illinois, was designed to divert about 10,000 cubic feet per second of water which would naturally flow over Niagara Falls. It has not been fully completed, but it now has a capacity of about 5,000 cubic feet per second. The amount which it is actually diverting has thus far been limited by the Secretary of War to about 4,200 cubic feet per second. In addition to the foregoing, about 333 cubic feet per second of Lake Erie water is now taken for power purposes from the Erie Canal at Lockport.

25. Full and precise information concerning the plans and the legal rights of the companies which have not begun or completed their works has not been obtainable. In the cases of the corporations now furnishing or preparing to furnish electricity for commercial purposes, the franchises are vague as to the volume of water to be used, which is the feature of greatest interest here. We have computed the volumes from the available data, and have endeavoured to make the figures conservative. It must be understood that these figures are fair approximations. In proceeding to an examination of the effect upon Niagara Falls of the works proposed, the subject is much simplified by considering only those companies which derive their water from the

Niagara river itself, and that is the course here pursued. Any effects caused by these works will be exaggerated by the other works mentioned.

26. The total quantity of water to be taken from the river by works now authorized is :

	Cubic feet.
Niagara Falls Hydraulic Power and Manufacturing Company	9,500
Niagara Falls Power Company	17,200
Canadian Niagara Power Company	9,500
Ontario Power Company, not including Welland River Development	12,000
Electrical Development Company	11,200
Niagara Falls Park Railway Company	1,500
Total	60,900

Of this amount 26,700 cubic feet is to be taken on the American side and the remainder, 34,200 cubic feet, on the Canadian side. That is, 27 per cent of the average discharge and 33 per cent of the low-water discharge of the Niagara river will cease to pass over the falls when these works are completed and in full operation. The quantity to be diverted is more than double the quantity which now passes over the American falls, which at the average stage is about 27,800 cubic feet. That this will in general have an injurious effect upon the falls seems self-evident. The volume of water to be diverted is about the equivalent of the entire discharge of Lake Superior over the Sault Ste. Marie. The amount thus far actually diverted is but 17,800 cubic feet per second, and has had an appreciable effect upon the falls. To foretell with accuracy the effects in detail of the full diversion authorized would require a more complete knowledge of the bed of the river than is now obtainable. The water taken on the Canadian side below the crest of the rapids will affect the Horseshoe Fall alone. If all that taken on the American side should affect the American Fall alone, it would practically leave it dry ; but it seems probable that only a part of this diversion will be at the expense of the American Fall.

Exactly what portion that will be can not be stated with precision, but from a study of the channels and reefs, so far as they are known, a reasonable estimate is that the water would come from the two arms in about the proportion of one-sixth from the American Fall and five-sixths from the Horseshoe Fall. Exactly what form the changes in the two cataracts will take, whether they will be made narrower, or be broken up into a greater number of streams, or simply be reduced in volume, retaining in general their present form, can not now be foretold, for the reason that there is no accurate knowledge of the form of and depth of water on the crests. If 60,900 cubic feet per second be diverted, the loss will be important, but if the diversion be limited to this amount, or reduced, as hereafter indicated, it may not prove disastrous. This can not be definitely determined until the works now under construction have been completed and put in operation. When that happens, if it be found that the falls have not suffered serious damage, as a scenic spectacle, it does not follow that additional water may be diverted with impunity. Additional diversion would be an experiment even more dangerous than that now being tried, and in our opinion should not be permitted.

27. In return for the impairment of the falls thus far authorized the state of New York will receive practically nothing for the 342,000 horse-power authorized on that side, and the Queen Victoria Niagara Falls Park will receive an annual rental of $270,000, or an average of 65 cents per horse-power for the 415,000 horse-power authorized on the Canadian side. These figures do not include the 8,000 horse-power being developed by the electrical railway nor the power developed by the Hamilton Company with water from the Welland Canal.

28. If all the water and all the head from the top of the upper rapids to the foot of the falls could be utilized, there would result over 4,000,000 mechanical horse-power. Probably space could be found, if desired, for works which would utilize about half

of this, or, say, 2,000,000 horse-power, or possibly more. As they could not utilize all the head, they would use much more than half the water. It will require time to create a market for all this power, but it is reasonably certain that it will in due season be found if the development of the power itself is to go on unchecked. The difference in cost in favour of falling water over any other method of developing power is so great that all other methods are sure to be abandoned where sufficient water power is available. The difference at Niagara Falls is probably not less than $15 or $20 per annum per horse-power. The cost of transmission to distant points increases with the distance, and finally becomes so great as to be unprofitable ; but electrical engineers are engaged in improving the methods and reducing the cost. An average difference of cost for each horse-power can not now be given with any close degree of approximation, but the difference, whatever it is, is a perpetual annual saving, which, if capitalizd, will show that the commercial value of the power at Niagara Falls is very great and is to be measured by the hundred millions of dollars.

29. Whether this commercial asset shall be utilized to such an extent as to seriously impair the majesty and scenic beauty of the falls depends upon the public will. In our opinion the commercial advantages of a large increase in development of power will not compensate for the great loss to the world, of the inspiration, æsthetic education, and opportunity for recreation and elevating pleasure which the mighty cataract affords. The direct advantages to the public from revenue is nothing on the New York side of the river, and comparatively slight on the Canadian side. There is of course an indirect advantage due to added taxable wealth and reduction in the cost of power, but these advantages are, in our opinion, slight in comparison with those which spring from the preservation of the beauty and majesty of the falls in their natural condition. Over 800,000 people visit the falls annually, deriving pleasure and inspiration from them. The nations of the world have always recognized the great value of parks and reservations, and throughout the civilized world they have preserved places of natural grandeur and beauty and furnished parks, artificially beautified, for rest, education and the elevation of their people. An illustration may be given in the case of the city of New York, one of many hundreds. There the municipality has acquired, in Central Park, property which is estimated to be worth $225,000,000, and has spent millions upon its improvement and ornamentation. The United States government has reserved lands of striking picturesqueness, grandeur and interest, regardless of their value. These illustrations would seem to prove conclusively that the people are not inclined to offset mere commercial values against the intangible but none the less great advantages found in the preservation of the great works of nature.

30. It is probably not expedient to atempt the recovery of the rights granted to companies which have taken full advantage of them. In the case of the Niagara Falls Power Company, on the American side, the franchises authorizes it to develop 200,000 horse-power. It has constructed works having about half that capacity, but has not begun the construction of the additional works, and we believe has no present intention of doing so In the case of the Ontario Power Company on the Canadian side, the construction of works under the agreement of April 11, 1900, has been indefinitely postponed. The authority for the additional works in both these cases could probably be withdrawn without inflicting an unreasonable hardship. All franchises of which advantage has not been taken should be extinguished.

31. The following is a summary of the foregoing statement of facts:—

(*a*) The glory of Niagara Falls lies in the volume of its water rather than in its height, or in the surrounding scenery.

(*b*) Works are now authorized and partially completed at the falls which will divert from the Niagara River above the falls about 27 per cent of the average discharge, and about 33 per cent of the low-water discharge, which is more than double the quantity now flowing over the American Fall. In addition to this, water naturally tributary to the Niagara river is being diverted through the Chicago drainage canal, and for power in addition to navigation purposes through the Erie and the Welland canals.

(*c*) The effect of this withdrawal of water is to injure both the American and the Horseshoe falls in nearly equal proportions. While the injury will be perceptible, it may not be destructive or disastrous.

(*d*) Improvements in the transmission of electric power and increased demand will make a market for all the power which can be developed at Niagara Falls, and will cause a destruction of the falls as a scenic spectacle if the development be allowed to go on unchecked.

(*e*) Charters have been granted to corporations which propose to divert additional amounts in quantities not now limited.

(*f*) The sums of money invested, or being invested, in the works now in operation or under construction, and in the industries dependent upon them, amount to many millions of dollars. It is probably not expedient to attempt the withdrawal of the rights thus utilized.

(*g*) The commercial value of the water power at Niagara Falls is very great, but if compared with values set aside by wealthy communities elsewhere for park purposes this value is not too great to be devoted to similar purposes. The place is visited annually by about 800,000 people.

32. If the falls are to be preserved it must be by mutual agreement betwen the two countries. As a step in that direction we recommend that legislation be enacted which shall contain the following provisions, viz:—

(*a*) The Secretary of War to be authorized to grant permits for the diversion of 28,500 cubic feet per second, and no more, from the waters naturally tributary to Niagara Falls, distributed as follows :

	Cubic feet.
Niagara Falls Hydraulic Power and Manufacturing Co....	9,500
Niagara Falls Power Company..	8,600
Erie Canal or its tenants (in addition to lock service)	400
Chicago drainage canal....	10,000

(*b*) All other diversion of water which is naturally tributary to Niagara Falls to be prohibited, except such as may be required for domestic use or for the service of locks in navigation canals.

(*c*) Suitable penalties for violation ofthe law to be prescribed.

(*d*) The foregoing prohibition to remain in force two years, and then to become the permanent law of the land, if, in the meantime, the Canadian government shall have enacted legislation prohibiting the diversion of water which is naturally tributary to Niagara Falls, in excess of 36,000 cubic feet per second, not including the amounts required for domestic use or for the service of locks in navigation canals. It is assumed, however, that an understanding upon this subject would be reached by treaty.

33. The object of such legislation would be to put a stop to the further depletion of the falls, and at the same time inflict the least possible injury upon the important interests now dependent upon this water power. The amount to be diverted on the Canadian side has been fixed with a view to allowing to the companies on that side the amounts for which they now have works under construction, which are:

	Cubic feet.
Canadian Niagara Power Company	9,500
Ontario Power Company..	12,000
Electrical Development Company	11,200
Niagara Falls Park Railway Company	1,500
Welland Canal or its tenants (in addition to lock service) ..	1,800

34. One of the effects of such legislation would be to give to Canada the advantage of diverting 7,500 cubic feet per second more than is diverted in the United States. The advantage is more apparent than real, since the power generated on the

Canadian side will to a large extent be transmitted to and used in the United States. In the negotiation of a treaty, however, the point should be considered.

35. The substance of this report was submitted to our Canadian colleagues before the passage of the joint resolution, with a view to uniting in a joint report under the general law providing for the commission. There was a substantial agreement in the statement of facts, and such differences as developed with respect to the recommendations which ought to be made did not seem unsuperable, but our colleagues desired time for further consideration. We have no doubt of their sympathetic interest in carrying out that part of the instructions contained in the resolution which requires us 'to exert in conjunction with the members of said commission representing the Dominion of Canada, if practicable, all possible efforts for the preservation of Niagara Falls in their natural condition.'

Very respectfully,

O. H. ERNST,
Colonel, Corps of Engineers, Chairman.

GEORGE CLINTON,
Member.

GEO. Y. WISNER,
Member, American Section.

THE SECRETARY OF WAR,
Washington, D.C.

APPENDIX A.

STATE OF NEW YORK,
ATTORNEY-GENERAL'S OFFICE,
ALBANY, November 16, 1895.

DEAR SIR,—Some time ago the question of the right of the Niagara Falls Hydraulic Power and Manufacturing Company to enlarge the capacity of their canal, by which a portion of the water of the Niagara river is diverted for manufacturing purposes, was submitted to me for examination by you. The question is one involving great interest, not only to the corporation referred to, but to the state itself, and I have therefore considered it with a great deal of care before venturing to express an opinion.

The facts in the case may be briefly stated. The canal in question was originally constructed in the year 1859. Its dimensions were 70 feet wide by 14 feet deep. The inlet is at Port Day, about 1 mile above the falls, and it runs through a strip of land 100 feet wide to the mills on the bank of the river below the falls, where the waters, after supplying power to various industries, are discharged into the river.

About the year 1878 the title to the land in the 100-foot strip, as I am informed by Mr. Schoelkopf, of Niagara Falls,, was acquired by the present owners, since which time the canal has been in active operation, and has supplied power to mills of a sufficient capacity to employ a large number of hands, residents of the city of Niagara Falls, and whose continued prosperity, to a very large degree, is dependent upon the operation of the mills in which they are employed. Sometime after the acquisition of title to the strip of land by the present owners they made application to the land commissioners of the State of New York for a grant of land under water adjoining the inlet to the canal.

In the papers submitted on that application it was stated to be the intention of the owners to increase the capacity of the canal, and thereby increase its production of horse-power. The grant was made by the commissioners with the condition that no

structures were to be built upon the granted land without the consent of the Niagara Reservation Commission. Thereafter application was made to the reservation commission for leave to erect cribs on the land under water, the purpose of which was to prevent the flow of ice and other refuse into the canal, to the detriment of the interests of the Niagara Falls Hydraulic Power and Manufacturing Company.

The capacity of the canal at that time, if I am correctly informed, was 200,000 cubic feet per minute. No objection was made (at least publicly) to this diversion of the waters of the river at that time. Since then, however, various grants of privileges by the legislature of the State have been given to several corporations to divert the waters ofthe Niagara River for power purposes. In consequence of these grants apprehension has been created as to the probable effect upon the flow of water over the falls, and your commission, actuated by commendable zeal to protect the great natural beauty of the reservation, have determined that further encroachments upon the stream shall be prevented, if possible.

The law under which your board was created (chap. 336, Laws of 1883) states that the object of the creation of the commission was to preserve the scenery of the Falls of Niagara. It provides for the condemnation of the lands to be selected by the commission, and for the compensation to be paid to the owners of the property condemned. In carrying out the provisions of the law several million dollars have been expended by the State of New York, which will be converted into a mere waste of public moneys if the flow of water over these falls is to be seriously diminished.

While this is, of course, a very serious consideration, I have not permitted myself to lose sight of the importance to the industries dependent upon the maintenance of the canal for their power, which action on the part of the State authorities will have.

It is a very grave duty to be compelled to pass upon public questions wherein such great private interests are concerned. Nevertheless it is one which I see no way to escape, and while from certain considerations I would be pleased to arrive at a different conclusion, I am compelled to hold, from my examination of the law on the subject, that the Niagara Falls Hydraulic Power and Manufacturing Company may be restrained from increasing the capacity of the canal. It is only fair, however, that my reasons for this conclusion should be stated. They are as follows :—

The Niagara river is a public navigable stream, to the bed of which, and the water flowing over it, the State and not the riparian owner has title.

It would be a waste of time to attempt to show why this proposition is correct. It is sufficient to say that it has been amply sppported by judicial decisions and is now the established law.

Ill. C.R.R. Co. *v.* Ill. (146 U.S., 387).
Smith *v.* Rochester (92 N.Y., 479).
Matter of St. Reservation (16 Abb. N.C., 395).

The sole question, therefore, for determination is, 'Can an owner of the soil adjoining a navigable stream divert the water for private manufacturing purposes without the consent of the State?' Let us examine it.

By the term 'navigable,' it must be remembered, is not meant 'capable of being navigated.' As used in this discussion, 'navigable stream' means one which is navigable in the legal sense. Rivers may be navigable in fact but not in law, or they may be navigable in law but only in part navigable in fact. A mere local interruption of actual navigability, therefore, will not change the character of a stream in its legal aspect.

The river being navigable, in the legal sense, the title to the bed of the stream and to the water flowing over it is in the State, at least to the boundary line between the State and Canada.

People *v.* Appraisers (33 N.Y., 464).
Crill *v.* Rome (47 How. Pr., 398).
Morgan *v.* King (35 N.Y., 454).

People *v.* Tibbetts (19 N.Y., 523).

Ex parte Jennings (6 Cow., 518).

Therefore, leaving out of view for the present the grant of land under water to the Hydraulic Power and Manufacturing Company, the State could unquestionably deprive the corporation of all use of the waters of the river for power purposes by devoting the stream to other public use.

Smith *v.* Rochester (92 N.Y.).

Whether or not that has been done by the laws establishing the Niagara reservation I will discuss hereafter. I prefer at this point to consider the abstract question of the right of an owner of land adjoining a navigable stream to divert a considerable portion of the waters for manufacturing purposes without a grant or prescriptive right.

Nuisances may always be abated by action in the name of the aggrieved party. Public nuisances include any encroachment upon highways or navigable streams, and it is not an essential characteristic of the encroachment upon the stream that it should be an actual hindrance to navigation.

Wood on Nuisances, 2d ed., secs. 478-480, and cases cited.

The diversion of water from a public stream for any other than domestic purposes is a nuisance, and therefore may be abated at the suit of the Attorney-General.

Philadelphia *v.* Gelmartin (71 Penn. St., 140).

The Niagara Falls Hydraulic Power and Manufacturing Company is organized under the Act of 1875, chapter 611. Its objects are declared to be the development of the hydraulic canal in Niagara Falls, and the establishment and conducting of various manufacturing interests. Under its charter it is not only supplying its own mills but is furnishing other industries with power for a consideration. So far as the latter fact is concerned, certainly no question can be raised as to the rights of a riparian owner to the use of water for his own benefit. I assume the fact that the capacity of the canal at the outset was sufficient for all the purposes of the power company, and that the increased capacity is desired for the purpose of enabling the corporation to derive a revenue from its sale of power to others. I have no hesitation in declaring this to be unlawful. A non-riparian owner is not entitled to any benefits of a stream other than those enjoyed in common by the public, and a riparian owner at the most is entitled only to personal benefits derivable from use devoted to personal purposes solely. They do not include the transmission of power to property located upon premises that may be far removed from the lands of the riparian owner.

The case last cited was an action brought by the owner of a boat which had been prevented from navigating the Sshuylkill, by reason of the diversion of the waters of that stream by the city of Philadelphia for domestic or other purposes. The court in its opinion says:

'In deciding upon the question of illegality in drawing off the water from the navigation, we are carried beyond its use for power, to inquire into the character of the consumption claimed as an overruling necessity. We have already seen that the city is a large vendor of water from which she is deriving revenue, for all the purposes of the arts, manufacturing, business and pleasure. These uses are not domestic, that is, such as are for the preservation of the life and health of the population and their creatures, but are simply utilitarian or business uses, and far exceed those needed for domestic purposes. And even as to those termed domestic, a distinction must be noted between the use propr and that which is lavishly expended in pavement washing, baths, &c. It is perfectly obvious, therefore, that the city drew off water not only for driving and lifting power, but for a consumption far beyond any imperious necessity, and for purposes wholly subordinate to the right of navigation. She chose to prefer the pecuniary interests of her citizens, and doing an injury thereby she must make compensation to the injured parties. I mean not by these remarks to draw any comparison between the importance of the use of the water for the

great purposes of industry, wealth, and cleanliness of a city so populous as Philadelphia, and the use of it for navigation during a few days of drought. The question for us is that of legal right, not comparative weight. Such important interests as those of the city are not likely to lead to the substitution of might for right; yet, they are not of that imperious necessity which justifies might, and changes wrong into right. Administrators of the law, we cannot bend or break the law before a large interest, more than we can before one that is small. The doctrine of imperious necessity is not in this case.'

It is historical that the Niagara river at Fort Day has been navigated by vessels of large burden, and, indeed, to a point some distance below. The erection of cribs to divert ice and other refuse from the canal inlet is, therefore, an actual obstruction to navigation, and it is not necessary to show present use of the river at this point for navigation purposes. Once a highway, always a highway, is true of navigable streams. (*See* Yolo *v.* Sacramento, 38 Cal., 193; Wood on Nuisances, 478, 485.)

Ex parte Jenkins (6 Cowen, 518) is also of interest on this point. That was a proceeding brought in mandamus to compel commissioners appointed to appraise damages occasioned by the diversion of the stream of the Chittenango for the purposes of the Erie Canal, which diversion prevented the use of the water of the stream by riparian owners for power purposes in operating mills. The court in awarding mandamus, says:—

'The objection is contained in the affidavits of Mr. Seymour that, in point of fact, the State has not parted with the land upon which the Chittenango passes, at the places claimed, but had bounded purchases of land on the margin of the stream, so that, as he believes (and he believes the other appraisers were satisfied of the fact being so), the State was still the owner of the land covered by the waters of the stream, and had not parted with it or contracted to part with it, to any person whatever, or authorized the use of the water for hydraulic purposes at the places in question. If the construction set up by the commissioners be the true one, if the State owns the land covered by the water, it is clear that, though the relators may be entitled to the use of the water flowing by and touching upon them for all ordinary purposes, yet they cannot build mills upon and raise the water of the stream. They are trespassers, and the State may claim not only the waters, but the mills themselves, so far as they encroach upon the stream.'

I will not consider the effect of the grant by the land commissioners of lands under water to the corporation operating the canal.

The powers of the land commissioners at the time the grant was made were conferred by section 67, page 633, volume 1, eighth edition, Revised Statutes. It reads:

'The commissioners of the land office shall have power to grant, in perpetuity or otherwise, so much of the lands under the waters of navigable rivers or lakes as they shall deem necessary to promote the commerce of this State, or proper for the purpose of beneficial enjoyment of the same by the adjacent owner.'

The court of appeals, in pasing upon the character of such grant, says: 'In every such grant there was an implied reservation of the public right, and so far as it is assumed to interfere with it, or to confer the right to impede or obstruct navigation, or to make an exclusive appropriation of the use of navigable waters, the grant was void.'

Again : 'Public grants to individuals under which rights are claimed in impairment of public interests, are construed strictly against the grantee, for it is reasonable to suppose that if they were intended to have this operation, the intention would have been expressed in plain and explicit language.'

People *v.* N.Y. & Staten Island Ferry Co. (68 N.Y., 71).

I have been unable to find any language in the grant to the Niagara Falls Hydraulic Power and Manufacturing Company which can be construed as authorizing them to divert the waters of the Niagara river. Applying the principles in the case

last cited, it is certain that that grant can afford no defence to an action brought to restrain the unlawful taking of the waters.

It now remains to determine whether or not the waters of the Niagara river have been devoted by the legislature to a public use to an extent that will prevent the diversion of the water above the falls for power purposes. The objects and purposes of the statutes creating the Niagara reservation were to preserve a great natural waterfall and its environments for the enjoyment of the people of this State. In fact, the statutes themselves declare that the commissioners shall take all proper steps to restore and afterwards to preserve the scenery as nearly in its natural state as possible.

The flow of water over the falls is an essential element in the preservation of the scenery, and if it can be shown (as I am informed it can) to be the fact that the diversion of the large quantities of water through the canal of the Niagara Falls Hydraulic Power and Manufacturing Company has a diminishing effect upon the flow of the water over the falls, the diversion is a nuisance and can be restrained.

All of which is respectfully submitted.

T. E. HANCOCK,
Attorney-General.

HON. ANDREW H. GREEN,
President Niagara Reservation Commission, New York city.

APPENDIX B.

LIST OF DEPENDENT INDUSTRIES OF THE NIAGARA FALLS HYDRAULIC POWER AND MANUFACTURING COMPANY.

Electric light for street and store service.
Pittsburg Reduction Company.
Niagara Falls Brewing Company.
Wm. A. Rogers (Limited.)
Niagara Gorge Railroad.
Youngstown and Lewiston Railroad.
National Electrolytic Company.
Acker Process Company.
Walker Manufacturing Company.
Cliff Paper Company.
Cataract City Milling Company
Pettebone-Cataract Paper Company.
Oneida Community Company.
City Waterworks.
Niagara Falls Milling Company.
Carter Crum Company.
Central Machine Company.

Appendix C.

The Niagara Falls Power Company—List of users.

	Maximum power.	Transmission distance.
NIAGARA FALLS, N.Y.	*Horse-power.*	*Miles.*
The Pittsburg Reduction Co.	8,000	0.46
The Carborundum Co.	5,000	.38
Union Carbide Co.	17,000	2.00
Niagara Electro-Chemical Co	3,000	.75
Niagara Falls Lighting Co.	1,000	.14
International Railway Co.	1,500	
The Niagara Falls Water Works Co. (hydraulic power)	300	
International Paper Co. (hydraulic power)	8,000	
Castner Electrolytic Alkali Co.	8,500	.85
Oldbury Electro-Chemical Co.	2,500	2.18
International Acheson Graphite Co.	2,000	.28
Acetyvone Manufacturing Co.	50	.95
Roberts Chemical Co.	500	1.90
Francis Hook and Eye and Fastener Co.	15	.47
Norton Emery Wheel Co.	1,500	.95
The Natural Food Co.	1,500	.66
Ramapo Iron Works	500	1.70
By-Products Paper Co.	500	.19
Composite Board Co.	200	.34
Niagara Research Laboratories	500	.28
Lockport Paper Co.	500	
Cataract Consumers Brewery	140	
Development and Funding Co.	750	
Niagara Tachometer and Instrument Co.	15	
Ozone Vanillin Co.	125	
Phosphorus Compounds Co.	50	
Acheson Siloxicon Articles Co	50	
Niagara River Manufacturing Co.	800	
NIAGARA FALLS, ONTARIO.		
A. C. Douglass, contractor	400	3.00
Niagara, St. Catharines and Toronto Railway	500	3.80
Lighting Co.	500	3.40
Canadian Shredded Wheat Co. (Limited)	75	
International Acheson Graphite Co.	200	
Larkin, Sangster and Marshall, contractors	2	
Loretto Convent	40	
Monastery of Mount Carmel.	35	
TONAWANDA.		
International Railway Co	1,500	
Tonawanda Board and Paper Co.	1,200	15.00
Buffalo Bolt Co	160	14.00
Philip Houck Milling Co.	142	14.00
F. J. Alliger Co.	107	15.00
Adamite Abrasive Co	50	14.50
Orient Manufacturing Co	20	14.00
Felton School.	22	14.00
LOCKPORT.		
International Railway Co.	1,000	26.00
OLCOTT.		
International Railway Co.	1,000	39.00
BUFFALO.		
Buffalo General Electric Co	6,000	27.60
Great Northern Elevator	900	29.50
Electric Grain Elevator.	200	30 70
Buffalo Elevating Co.	950	29.00

The Niagara Falls Power Company—List of users—Continued.

BUFFALO—Continued.	Maximum power.	Transmission distance.
	Horse-power.	*Miles.*
Buffalo Cereal Co	375	30.30
American Brake Shoe and Foundry Co	40	33.20
Charles G. Curtiss Co	125	25.50
McKinnon Dash Co	100	24.40
The Gypsum Products Co		
The General Railway Signal Co		
Schoellkopf & Co	50	30.00
The National Battery Co	90	26.30
International Railway Co		
Great Eastern Elevator	900	30.00
Buffalo Dry Dock Co	133	30.00
Edward Elsworth & Co. (H. O. Mills)	150	30 00
Snow Steam Pump Works	150	33.30
The Jacob Dold Packing Co	100	32.50
The John Kam Malting Co	225	24.30
Pratt & Letchworth Co.		
The Wood & Brooks Co	100	24.40
Sidney Shepard & Co	100	30.00
Iron Elevator and Transfer Co	165	30.00
W. W. Oliver Manufacturing Co	15	24.70
New York Car Wheel Co	200	24.30
The United States Rubber Reclaiming Works	995	31.70
The American Radiator Co. (Bond plant)	200	24.00
Barcalo Manufacturing Co		
American Agricultural Chemical Co	125	32.00
Acme Steel and Malleable Iron Works	50	24.80
Cumpson-Prentiss Coffee Co	30	29.10
J. I. Prentiss & Co	30	29.00
Schoellkopf, Hartford & Hanna Co		
The U. S. Hame Co.		
Knowlton Warehouse Co		
Iroquois Brewing Co		
Faxon, Williams & Faxon (bakery)		
The Sherwood Manufacturing Co		
Duffy Silk Co		
American School Furniture Co.:		
Foundry		
Works		
Buffalo City Waterworks		
Duluth Superior Milling Co		
The Frontier Ice and Stone Co		
The New York Central and Hudson River R. R. (shops)		
The Erie R. R. Co. (shops)		
The General Chemical Co		
The Oswegatchie Manufacturing Co		
G. F. Zeller & Sons		
Buffalo Foundry Co	240	35.10
H. O. Mills Annex	255	29.30
The Jewett Refrigerator Co	30	24.80
Buffalo Pitts Co.:		
Works	187	35.50
Foundry		
Buffalo Brake Beam Co	30	25 00
Buffalo Dental Manufacturing Co	20	35.50
Keystone Manufacturing Co	25	24.80
R. L. Ginsburg & Sons	33	34.00
Buffalo Weaving and Belting Co	65	25.50
H. W. Dopp Co	10	25.00
Frontier Iron Works	15	25.00
The Crosby Co	50	33.00
Spencer Kellogg	560	29.20
The Lake Erie Engineering Works		
John Schmitz		
The Battle Creek Breakfast Food Co		
The Collins Baking Co	50	33.20
George Urban Milling Co	450	34.50
C. Kurtzmann & Co		

The Niagara Falls Power Company—List of users—Concluded.

	Maximum power.	Transmission distance.
BUFFALO—Concluded.	*Horse-power.*	*Miles.*
The Buffalo Gasoline Motor Co	20	25.00
The Niagara Mill and Elevator Co	100	26.00
Pratt & Lambert	19	24.50
The Delaware, Lackawanna and Western R. R. shops	150	34.50
The Niagara Cordage Co		
The U. S. Headlight Co.	40	26.00
H. Messersmith (Laverack Building)	100	28.20
The Buffalo Structural Steel Co	30	26.00
The Wegner Machine Co	40	29.00
J. N. Adam & Co	100	28.20
The estate of Walter Cary (Genesse Hotel)	100	28.10
The McLean Box Factory		
The George N. Pierce Co		
The American Malting Co		
The Buffalo Fertilizer Co		
The Buffalo Rubber Manufacturing Co.		
The U. S. Cast Iron Pipe and Foundry Co		
The L. V. R. R. Co. shops		
The Buffalo Box Factory		
American Radiator Co. (Pierce plant)		
Rogers Plating and Foundry Co		
Fleming Warehouse Co		
Hewitt Rubber Co		
C. & B. Transit Co		
The D. H. Stoll Co		
The Ontario Elevator		
L. M. Ericsson Telephone Manufacturing Co		
The Niagara Malting Co		
The Buffalo Union Furnace Co		

APPENDIX D.

Statement concerning companies incorporated to take water from Lake Erie and Niagara river, but which have not as yet constructed works under these charters.

AMERICAN SIDE.

Lockport Water Supply Company.—Incorporated 1886. New York State. Empowered to supply water for manufacturing and other purposes to cities within the county of Niagara; to take water from the Niagara river between the mouth of Tonowanda creek and the east line of lot No. 52 of the Mile reserve, and to discharge water into Lake Ontario or into Eighteen Mile creek. Work to be commenced by 1891. No work done.

Lewiston Water Supply Company.—Incorporated 1888. New York State. Empowered to supply water to Lewiston and other towns in the township of Niagara and Lewiston for manufacturing or other purposes; to take water from the Niagara river between Cayuga creek and the east line of lot 46, Mile Reserve; discharge water into Niagara river near the town of Lewiston. Work to be commenced by 1893. No work done.

Buffalo and Niagara Power and Drainage Company.—Incorporated 1889. New York State. Empowered to build and operate public raceway in connection with the Niagara river for water power and other purposes; to take water from and discharge

water into the Niagara river at such points as may be convenient. Work to be completed by 1894. No work done.

Niagara County Irrigation and Water Supply Company.—Incorporated 1891. New York State. Empowered to build and operate public waterway from Niagara river between Cayuga creek and lot 71 of Mile Reserve; to supply water to Lewiston and other villages in the townships of Niagara, Lewiston and Porter; to lease and sell water for manufacturing and other purposes; to take water from Niagara river between points specified and discharge into Niagara river near Lewiston or Porter. Work to be commenced by 1896. This company claims to have done some work, and to be proceeding with development.

Niagara Power and Development Company, originally the Model Town Company.—Incorporated 1893. New York State. Further legislation 1894. Authorized to build a town and equip plants for all public utilities therein. Empowered to take water from Lake Erie or Niagara river for all purposes except for motive power for factories. May purchase or lease franchise of the Niagara County Irrigation and Water Supply Company.

Niagara, Lockport and Ontario Power Company.—Incorporated 1894. Empowered to supply water and electricity to Lockport and other cities in Niagara, Erie, and Orleans counties; to take water from the Niagara river between mouth of Tonowanda creek and east line of lot 52 of Mile Reserve and discharge water into Lake Ontario or Eighteen Mile creek. Work to be commenced by 1904. In 1904 failed to obtain legislation to perpetuate right to take water from Niagara river. Is now building works for distribution of electric energy.

APPENDIX E.

Statement concerning companies incorporated to take water from Lake Erie and Niagara river, but which have not as yet constructed works under these charters.

CANADIAN SIDE.

Ontario Power Company, originally Canadian Pawer Company.—Incorporated 1887. Dominion Parliament. Other legislation 1891, 1893, and 1899. Empowered to build a canal and hydraulic tunnel from Welland river, near junction of Niagara, to Niagara river south of the whirlpool, and to supply water, electricity, or other power. As this company is empowered to make two separate developments, one of which is well under way, and as the Act of 1899 empowers it to extend and enlarge its works as demanded by business, there is apparently no limit as to the time when the second development may be commenced.

Hamilton Cataract Power, Light and Traction Company, originally Cataract Power Company of Hamilton.—Incorporated 1889. Province of Ontario. Further legislation 1904. Empowered to build and operate a canal and raceway from near Allanburg to the Welland river near Port Robinson as an extension of their canal from near Decews Falls. This company is said to lease from the Dominion government water from the Lake Erie level of the Welland canal.

Jordan Light, Heat and Power Company, originally Hamilton and Lake Erie Power Company.—Incorporated 1895. Further legislation 1898, 1903. Dominion parliament. Empowered to build and operate water course from Welland river between 12 and 30 miles from Niagara river to a point on Jordan river, and may dredge Welland and Jordan rivers; to use the waters of Lake Erie and Niagara river in such quantity as may be necessary for their purposes; to supply water and electricity or other power. To be completed by 1911.

Erie and Ontario Power Company.—Incorporated 1903. Dominion Parliament. Authorized to build and operate water course from Grand river or Lake Erie to Jordan River and Lake Ontario; to take waters of Lake Erie and to dredge Jordan river; to supply electric or other power and convey the same. To be completed 1908.

Niagara Welland Power Company, originally Welland Power and Supply Company. Incorporated 1894. Further legislation 1891, 1899, 1903, and 1905. Dominion Parliament. Empowered to build and operate canal from Welland river near Niagara river to near Thorold and to carry off surplus water to Lake Ontario; to supply power and to use canal for navigation. To be completed by 1910.

North American Canal Company.—Incorporated 1893. Dominion Parliament. Authorized to build and operate canal from Lake Erie near Port Colborne to Lake Ontario near Port Dalhousie, or to Niagara river near Queenston; canal to be 20 feet deep and sufficient width for two of the largest vessels to pass at full speed. Authorized to maintain a current of 3 miles per hour. To sell or lease water and hydraulic or other power. May dredge in the Welland and Niagara rivers. To be completed by 1903.

DEPARTMENT OF STATE,

WASHINGTON, March 19, 1906.

THE PRESIDENT:

In reply to your letter of the 15th instant, transmitting the resolution of the Colonial Dames of America relative to the preservation of Niagara Falls, and stating your desire to be informed regarding the present status of the negotiations with Great Britain on the subject, I have the honour to inclose herewith copies of correspondence had to the present time, through the War Department, with the American section of the International Waterways Commission.

Respectfully submitted.

ELIHU ROOT.

DEPARTMENT OF STATE,

WASHINGTON, February 13, 1906.

SIR,—Several months ago the State Department and the British ambassador took up the subject of a possible treaty between the United States and Great Britain relating to the use of the waters of the Niagara river and the preservation of the falls.

On the 13th of November the ambassador transmitted to the department, a report of the Canadian Privy Council, approved November 2, 1905, which stated that a report from the Canadian section of the Waterways Commission stated that the commission was studying the subject and expected to be able to 'make a joint report to the government of the United States and to the government of Canada before long, recommending the adoption of rules and regulations which would prevent in the future the destruction of Niagara Falls by the use of its waters by manufacturers.'

In the report by the American section, made to the Secretary of War on December 1, 1905, occurs the following statement:—

'The commission has made good progress in the collection of data bearing upon some of these questions, particularly those relating to the use of water at Niagara Falls.'

On the 28th of October, 1905, the commission appears to have adopted the following resolutions:—

Resolved, That this commission recommends to the governments of the United States and Canada that such steps as they may regard as necessary be taken to prevent any corporate rights or franchises being granted or renewed by either Federal, State, or provincial authority for the use of the waters of the Niagara river for power or other purposes until this commission is able to collect the information necessary to enable it to report fully upon the 'conditions and uses' of those waters to the respective governments of the United States and Canada.

The negotiation relating to a treaty on this subject has been suspended awaiting the further report of the commission, in accordance with the statements to which I have referred. There are many indications of active public interest in this subject, and a joint resolution having in view the preservation of the falls, pending in the House of Representatives, has been favourably reported by the committee on Rivers and Harbours. The indications are that if an agreement can be reached between the two countries as to the action necessary to accomplish the purpose, any legislation to give the agreement effect on the part of the American authorities would receive favourable consideration at the present session of congress and at the present session of the New York legislature.

It seems desirable, therefore, to press forward the negotiation for such an agreemen without any avoidable delay. May I ask you to ascertain whether the joint commission is not now prepared to make such a report upon the subject as may furnish a basis upon which the State Department and the ambassador may take up and proceed with the negotiation?

I have the honour to be, sir, your obedient servant,

ELIHU ROOT.

The Secretary of War.

War Department,

Washington, February 19, 1906.

Sir,—I have the honour to acknowledge the receipt of your letter of the 13th instant, in which you call attention to the fact that negotiations for a possible treaty between Great Britain and the United States in regard to the use of waters of Niagara river and preservation of the falls are now suspended, awaiting a further report from the International Waterways Commission is now prepared to make such report as may furnish a basis upon which the Department of State and the British ambassador may be able to proceed with the matter.

Replying thereto I beg to inform you that the chairman of the American section of the International Waterways Commission, Col. O. H. Ernst, to whom your letter was referred, reports under date of 17th instant, as follows:—

A copy of this letter has been sent to the chairman of the Canadian section and also to the other members of the American section of the International Waterways Commission in order that they may be prepared to discuss and act upon the question referred to at their next meeting.

It is expected that a meeting can be held during the week beginning February 26, when it is hoped and believed that the map of the locality which the commission has had under construction will be entirely completed.

The outcome of the meeting referred to by Colonel Ernst will be promptly communicated to the Department of State.

Very respectfully,

ROBERT SHAW OLIVER,
Acting Secretary of War.

The Secretary of State.

DEPARTMENT OF STATE,
WASHINGTON, March 13, 1906.

MY DEAR MR. SECRETARY,—I notice in the newspapers that the International Waterways Commission has taken some action about the Niagara Falls matter.

Have you received any report? If not, can you get one from them?

Very truly, yours,

Hon. WILLIAM H. TAFT, ELIHU ROOT.
Secretary of War.

REPORTS ON THE EXISTING WATER-POWER SITUATION AT NIAGARA FALLS, SO FAR AS CONCERNS THE CANADIAN POWER COMPANIES AND THEIR ASSOCIATED TRANSMISSION COMPANIES.

REPORT BY THE AMERICAN MEMBERS OF THE INTERNATIONAL WATERWAYS COMMISSION.

INTERNATIONAL WATERWAYS COMMISSION,
OFFICE OF AMERICAN SECTION,

BUFFALO, N.Y., September 29, 1906.

MR. SECRETARY,—The American members of the International Waterways Commission have examined the report dated August 15, 1906, by Capt. Charles W. Kutz, Corps of Engineers, U. S. Army, upon the subject of permits to the power companies at Niagara Falls, referred to them by your endorsement of September 5. They have the honour to return it herewith, and to submit in connection therewith the following remarks:—

In our report* dated March 19, 1906, we stated that the works projected on the American side at Niagara Falls would produce 342,000 horse-power besides a small amount on the Erie canal, and would consume about 28,000 cubic feet of water per second, while those projected on the Canadian side would produce 432,000 horse-power besides a small amount on the Welland canal, and would consume about 36,000 cubic feet of water per second. We thought that the amount on the American side could be reduced to 242,000 horse-power, using 18,500 cubic feet of water per second, without inflicting undue hardship upon invested capital, but we doubted the expediency of attempting to withdraw the other rights acquired by the power companies at Niagara Falls. These views were adopted by Congress with qualifications.

In the Act approved June 29, 1906, the amount of water to be diverted on the American side was cut down to 15,600 cubic feet per second in the first instance, but with the provision that additional amounts may be diverted after an interval of not less than six months if it be found that that can be done without detriment to Niagara Falls or the river.

The amount of power to be generated on the Canadian side was cut down from 423,000 to 350,000 horse-power, the control of Congress in the matter arising from the fact that a very large percentage of the Canadian output must, under present conditions, find a market in the United States. Under no circumstances is the total to be increased, but the amount which may be transmitted to the United States is to be diminished as the amount consumed in Canada shall increase. In this sliding scale a limit is fixed which divides the permits into two kinds, one of which may possibly be expected to have somewhat more permanency than the other, viz., *permits* to trans-

* Printed in Senate Doc. No. 242, Fifty-ninth Congress, first session.

mit electrical power from Canada into the United States to the aggregate amount of 160,000 horse-power, and *revocable permits* for the transmission of additional electrical power to the extent just indicated. It appears to us that this distinction was made for the purpose of giving a little more assurance of permanency to certain of the permits than it was possible to give to all of them, and not for the purpose of trying an experiment as to the effect upon the falls, of the diversion of a quantity of water so indefinite in amount. This view seems confirmed by the fact that the maximum amount allowed on the Canadian side, 350,000 horse-power, is about 83 per cent of the amount mentioned in the report, 423,000 horse-power, while the amount allowed on the American side, 15,600 cubic feet per second, is about 84 per cent of that mentioned in the report, the percentage of reduction thus being practically the same in the two cases. We see no reason why revocable permits for the transmission of power from Canada into the United States, additional to the 160,000 horse-power first to be authorized, should not be issued without delay if application for such permits be received.

The law provides for the issuance by the Secretary of War of four kinds of permits, viz. :—

1. Permits to divert water from the Niagara river on the American side to an aggregate amount not exceeding 15,600 cubic feet per second.

2. Revocable permits to divert additional water from the Niagara river on the American side to such amount, if any, as shall not injure the river as a navigable stream or as a boundary stream, and shall not injure the scenic grandeur of Niagara Falls ; but no such permits shall be issued until approximately the 15,600 cubic feet per second mentioned above shall have been diverted for a period of not less than six months.

3. Permits to transmit electrical power from Canada into the United States to the aggregate amount of 160,000 horse-power.

4. Revocable permits for the transmission of additional electrical power from Canada into the United States, but in no case shall the amount included in such permits together with the 160,000 horsepower mentioned above and the amount generated and used in Canada exceed 350,000 horse-power.

Applications have been received for permits of the first and third kinds, but in this report Captain Kutz confines himself to a consideration of those relating to the transmission of power from Canada into the United States, deferring to a future report all that concerns the diversion of water on the American side. He defers also a consideration of the question of granting transmission permits for amounts additional to the first 160,000 horse-power, expressing the opinion that it is ' the intent of the law to delay the issue of such permits until it is known what appreciable effect, if any, will be produced on the falls by the diversion of the amount of water that will be used under the first limitation.' As above stated, we do not concur in that opinion ; but the fact that no applications have been received for permits of this kind is sufficient reason for not discussing them at this time.

Applications for the transmission of power have been received from four companies, including the International Railway Company, whose rights under Canadian law to transmit power to the United States are in dispute and whose claims are small compared with those of the other companies. Captain Kutz recommends that no permits be issued to that company at this time, but that 2,500 horse-power be reserved for the present in order that it may be possible to grant the company a permit for that amount hereafter should the controversy over its rights under the Canadian laws be decided in its favour. In that recommendation we concur.

There will remain 157,500 horse-power to be divided among the three remaining applicants. These applicants are the American transmission companies, but their interests are identical with those of the Canadian companies from whom they derive power and must be considered in connection therewith. They are :

1. Niagara, Lockport and Ontario Company, taking power from the Ontario Power Company, applying for 90,000 horse-power.

2. Electrical Transmission Company, taking power from the Electrical Development Company, applying for 62,500 horse-power.

3. Niagara Falls Power Company, taking power from the Canadian Niagara Power Company, applying for 121,,500 horse-power.

The application of the Niagara Falls Power Company is for 11,500 horse-power more than the capacity of the works from which it is to derive power when completed as designed. The other companies ask for one-half the capacity of the works furnishing the power when completed as designed. The total amount asked for is 274,000 horse-power.

Captain Kutz has spared no pains in the collection of all the facts which have a bearing upon the question of how the available amount shall be divided among the three companies. After a careful consideration of the amounts of capital invested in the power plants, the amounts required to complete the works as designed, their capacity as completed under expenditures now made or pledged, their capacity as designed, the amounts of capital invested in transmission lines in the United States or on Canadian soil to connect with the United States, the contracts made for furnishing and receiving power, and other data, he concludes that there is no sufficient reason for discrimination between the companies except their relative ability to command the Canadian market. The Electrical Development Company was organized with that market prominently in view and is able to obtain a sale there of about 25,000 horse-power more than either of the other companies. Its claim to the American market is diminished by that amount. If the quantity allotted to that company be 37,500 horse-power there will remain 120,000 horse-power to be equally divided between the Ontario Power Company and the Canadian Niagara Power Company, giving them 60,000 horse-power each. We believe this to be an equitable division of the power available and we join with Captain Kutz in the recommendation that permits for the transmission of power to the United States be granted to :

	Horse-power.
The Niagara, Lockport and Ontario Company from the Ontario Power Company	60,000
The Electrical Transmission Company from the Electrical Development Company	37,500
The Niagara Falls Power Company from the Canadian Niagara Power Company	60,000

Yours very respectfully,

O. H. ERNST,
Chairman.
GEORGE CLINTON,
Member.
E. E. HASKELL,
Member.

Hon. W. H. TAFT,
Secretary of War.

REPORT BY CAPT. CHARLES W. KUTZ, CORPS OF ENGINEERS.

WAR DEPARTMENT,
OFFICE OF THE CHIEF OF ENGINEERS,
WASHINGTON, August 15, 1906.

GENERAL,—1. In compliance with the written orders of the Secretary of War, dated July 14, 1906 (copy attached marked A), and your subsequent oral instructions,

SESSIONAL PAPER No. 19

I have the honour to submit herewith the following report upon the existing power situation at Niagara Falls :—

2. The information called for by the Secretary of War concerns not only the power companies now diverting water on the American side, but also those on the Canadian side who are seeking through their associated transmission companies to import power into the United States. This latter information, being of more immediate importance, will be considered first.

3. The four Canadian companies applying directly or through their transmission companies for permits to import power are the Ontario Power Company of Niagara Falls ; the Electrical Development Company of Ontario (Limited) ; the Canadian Niagara Power Company, and the International Railway Company.

THE ONTARIO POWER COMPANY.

4. This company was incorporated by an Act of the Dominion parliament in 1887, and is not limited by its statutory rights to the production of any given amount of power. All its plans, however, are subject to the approval of the commissioners for the Queen Victoria Niagara Falls Park. The present approved plans were designed for the production of 180,000 electrical horse-power, using its Niagara river intake. In addition to its Niagara river rights, the Ontario Power Company has a franchise for taking water from the Welland river, but beyond the purchase of a limited amount of land for right of way for the intake tunnel or canal this franchise has not yet been exercised.

5. The Niagara river plant as designed consists of headworks located above the first line of rapids, three main conduits or flumes 6,000 feet or more in length, leading the water through the park to a point below the falls, thence by penstocks in tunnel through the cliff to the generating station in the gorge, and lastly a distributing station or transformer house situated on the high bluff directly above.

6. The headworks are constructed for the full development; that is, 180,000 electrical horse-power. Only one of the three main conduits has been built, and this has a capacity sufficient, it is claimed, to supply water to 6 generating units, 3 with a capacity of 10,000 electrical horse-power each, and the remaining 3 with a capacity of 12,000 electrical horse-power each. The valve chamber of No. 1 conduit is complete for 7 units except 3 valve motors, and rough excavation has been made for the valve chamber of No. 2 conduit in which an eighth valve has been installed, so that No. 7 can be operated either from No. 1 or No. 2 conduit. Excavation for the power-house is complete for 8 units, the foundation and structure for 6 units. The central or main portion of the transformer house was designed and built for the control of 22 units, the number originally planned for the completed plant. The wings of the transformer house as now built have a capacity for 8 transformer sets, corresponding to 8 generator units. Four transformer sets are now installed. In addition, room is provided in the central part of the building for the passage of 4 additional transmission lines without change of voltage.

7. The books of this company show an expenditure of $5,142,000, exclusive of rentals and rights, with $400,000 due on uncompleted contracts. This total expenditure on power plant of $5,542,000 will complete the installation of 4 units. The installation of 2 additional units, orders for which have recently been given, will require an additional expenditure of $315,000. Of the 4 units now installed, 3 are ready for service, and the fourth lacks only a minor part to make it complete. The order for the fifth and sixth units calls for delivery within twelve months. The estimate furnished by the company of the cost of completing the approved design is $6,500,000.

8. In addition to the expenditure of the Ontario Power Co. itself, there has been expended by the Ontario Transmission Company nearly $1,000,000 in real estate, transmission lines, stations, &c. For financial reasons a separate organization is maintained, but the company is practically identical with the Ontario Power Company. It owns

an interest in the transformer house and owns all the transmission lines in Canadian territory. The Ontario Power Company has Canadian contracts for about 6,000 horse-power, with the option on the part of the purchaser to increase the amount to about 13,000 horse-power. It has a contract with the Niagara, Lockport and Ontario Power Company to deliver at the international boundary for use in the United States 60,000 horse-power, with the option on the part of the purchaser of increasing the amount to 180,000 horse-power. The latter contract is dated July 16, 1904, and provides that the 60,000 horse-power shall be delivered on or before January 1, 1907, with the option on the part of the purchaser of taking 60,000 additional horse-power January 1, 1911, and the third 60,000 horse-power on January 1, 1915.

9. The Niagara, Lockport and Ontario Power Company is building, switching and transforming stations and constructing transmission lines for the purpose of carrying out its contract with the Ontario Power Company. In furtherance of its plans the company has acquired a private right of way containing about 3,200 acres of land, with an unbroken strip 300 feet wide from the Niagara river to Lockport, a distance of 17 miles ; thence 200 feet wide to the suburbs of Rochester, a distance of 55 miles; thence 100 feet wide from the suburbs of Rochester to Fairport, a distance of 12 miles. In addition, a similar private right of way, owned in fee simple 100 feet wide, has been acquired from Lockport southward through the suburbs of Buffalo to the Lackawanna Steel Company's plant, a distance of 27 miles. The company has erected two transmission lines from the international boundary to Lockport, each with a capacity of 30,000 horse-power. From Lockport to Syracuse a single line partly over the right of way of the West Shore railroad has been completed, with a capacity of 10,000 horse-power, and a second line of greater capacity is under construction. On the double line from Lockport to Buffalo work is in progress, 60 per cent of the poles having been erected. Each of the Buffalo lines is to have a capacity of 30,000 horse-power.

10. The books of this company show an expenditure of $2,785,000, of which $1,200,000 is represented by right of way and $1,162,000 is represented by construction. The Niagara, Lockport and Ontario Power Company has actually executed contracts which call for the delivery within the near future of 6,000 horse-power, with provision for fixed increases at intervals varying from three months to three years, so that at the expiration of that time they will have a firm contract with their present customers for 14,240 horse-power, with options on the part of the purchasers which give them the right to increase the amount to 70,000 horse-power. The first of these contracts is dated June, 1905, three others in the fall of 1905, one in March, two in April, and two in May, 1906. In addition the company claims to have contracts verbally closed for 13,000 additional firm horse-power, and negotiations pending for 25,000 firm horse-power, making a total of 52,000 horse-power, for which they hope to have a market in the near future. The optional amounts named in these contracts and negotiations aggregate 166,000 horse-power. At the time of the examination, this company was actually transmitting to the United States 700 horse-power.

THE ELECTRICAL DEVELOPMENT COMPANY.

11. This company was incorporated by Act of the legislature of Ontario (5 Edward VII., ch. 12), for the purpose of developing, distributing and selling electrical power and for other purposes, but its charter gives it no specific right to take water from the Niagara river or its tributaries. To this company was assigned an agreement which three citizens of Canada had entered into with the commissioners for the Queen Victoria Niagara Falls Park, by virtue of which it is authorized to take from the Niagara river, water sufficient to develop 125,000 electrical horse-power. The amount of water for this purpose is computed to be 10,800 cubic feet per second.

12. In pursuance of this agreement, a plant has been designed and partially constructed that will be capable of producing the full amount of power authorized. The headworks are completed except for the removal of the cofferdam, while the wheel-pit

and tailrace tunnels are practically completed for the full development. Contract has been entered into for the construction of two-thirds of the power-house structure. The metal work of this part of the building is practically completed and the stone work 50 per cent completed. This will provide cover for 7 of the 11 units that are projected, each of which is designed with a capacity of 12,500 electrical horsepower. Only four generating units have actually been ordered. Two of the four have been delivered at the power house and are now being installed ; one of the two was being made ready for test at the time of the examination, and unless some unforeseen accident occurs should be ready for service during the month of September, and the other three at intervals of six weeks to two months thereafter. The transformer house as constructed is for 5 units. One bank of three transformers is on the ground, a second bank was scheduled for shipment August 1, and the third bank August 15. By its headworks, wheel-pit and tailrace development the company is committed to the installation of 11 units, by its power house to the installation of 7 units, and by its contracts for machinery to the installation of 4 units.

13. The books of the company show an expenditure to July 1, 1906, on the power plant of $4,500,000. The liabilities, incurred and unpaid, for completing the installation of 4 units are $1,760,000, a total investment in plant of $6,300,000. To complete the installation of 11 units would cost $1,576,000.

14. This company has affiliated with it the Toronto and Niagara Power Company, organized for the purpose of transmitting power from Niagara Falls, Ontario, to Toronto. Its transmission lines, which except for a short section are completed, will have a capacity of 20,000 horse-power, and represent an investment of $1,870,000, with $750,000 required for completion. The demands on this company from Toronto and intermediate territory will probably aggregate between 30,000 and 40,000 horse-power. The Electrical Development Company was organized primarily for the purpose of furnishing power to Canadian points, and its arrangements for selling power in the United States are in a more or less embryonic state. For distribution in the United States there was organized the Electrical Transmission Company of Niagara Falls, a corporation chartered under the laws of the state of New York. This company at present is a mere holding company, keeps no books, and all the expenditures made in its name have been advanced by the Electrical Development Company. The books of the Electrical Development Company show an expenditure on this account of $246,000, which was used for the purchase of an interest in the Niagara Falls Gas and Electric Light Company, Niagara Falls Gas Company, and the Albion Power Company, and for the purchase of real estate in Niagara Falls, $40,000 being the amount of the last item. This investment, together with the holdings of the 'Nicholl Syndicate,' a group of men who control the Electrical Development Company, gives control of these subsidiary companies to the power company.

15. The value of the properties thus controlled is approximately $1,000,000. The Niagara Falls Electrical Transmission Company also has an agreement with the International Railway Company looking to the building of a bridge crossing the Niagara river to be owned jointly by the two companies, across which it is proposed to convey power that is sold by the Electrical Development Company to the Niagara Falls Electrical Transmission Company. Negotiations with this company (I. R. R. Co.) also contemplate the granting to the transmission company of a right of way for its transmission lines over the right of way now being acquired by the railway company between Niagara Fals and Buffalo. This agreement with the International Railway has not yet assumed the form of a written contract. For carrying its transmission lines to Rochester this company proposes to use the right of way of the Buffalo, Lockport and Rochester Electric Railway. There is no contract to this effect, but as the Buffalo, Lockport and Rochester Railway is controlled by the Nicholl Syndicate above referred to, there is a community of interest. The Buffalo, Lockport and Rochester Railway is now under construction, the contract for grading a double-track road and for the construction of a single-track road having been entered into with J. G.

White & Company, contractors, on May 14, 1906, at a cost of $2,250,000. In addition to the above the Electrical Transmission Company has acquired franchises in its own name in seven cities and towns in western New York for the sale and transmission of power, and through the Niagara Falls Gas and Electric Light Company and the Albion Power Company it controls twenty other such franchises. The Niagara Falls Electrical Transmission Company has not executed any contracts for the delivery of power, but expects that its allied interests will require 17,500 horse-power. This expectation is based on the use by the Niagara Falls Gas and Electric Light Company of 3,000 horse-power, though the amount now distributed by this company is about 100 horse-power. It also includes an estimate of 4,000 horse-power for the Buffalo, Lockport and Rochester Railway Company. This amount is based on a double-track road, while the contract for the construction of the road calls for only a single track at the present time. The company also submitted confidentially a list of corporations which had made inquiries with reference to the purchase of power from the Niagara Falls Electrical Transmission Company, together with the amount of power which they would probably require. This list aggregates 141,000 horse-power. It is needless to say that these inquiries involve no obligation on the part of either party.

THE CANADIAN NIAGARA POWER COMPANY.

16. This company was incorporated by an Act of the legislature of the province of Ontario in 1892, and is not limited by its statutory rights to the production of any given amount of power. All its plans, however, are subject to the approval of the commissioners for the Queen Victoria Niagara Falls Park. The present approved plans were designed for the production of 121,000 horse-power; that is, 11 units each with a capacity of 11,000 horse-power. Regarding one of these units as a spare, so as to put it on the same basis with the two companies previously described, the nominal capacity of the completed plant may be taken at 110,000 horse-power. This company also claims the right to double this plant, basing the claim on that clause of the original charter which limits its occupation of park lands to a length of 1,200 feet, the length of the power-house now designed being 600 feet. As this right has in no way been exercised, and as it could not be exercised without the approval of the park commissioners, it need not be further considered.

17. This plant operates under an effective head of 141 feet, and for the development of 110,000 horse-power will require about 9,500 cubic feet of water per second. The head works consist of a head canal with a fore bay of 600 feet wide extending the whole length of the power-house. The headworks, gates, wheel pit, and tailrace tunnel are completed for the full development. Five generating units are completely installed and a portion of the power-house sufficient to cover them has been completed. The transformer station is also of sufficient size to accommodate five units. By its headworks, wheel pit and tailrace development the company is committed to the installation of 11 units; by its power-house and transformer house to the installation of five units.

18. The books of the company show an investment to July 1, 1906, including liabilities incurred and unpaid for completing the installation of five units, amounting to $6,250,000. For comparative purposes the value of the franchise, given as $900,000, should be deducted, making the cost of the installation $5,350,000. To complete the installation of 11 units would cost probably $1,250,000.

19. This company is an allied company of the Niagara Falls Power Company, and save for the maintenance of a separate organization, is identical with it. It expects to market practically all its power through the Niagara Falls Power Company, or through the latter's agents. An underground conduit, with a capacity of 128,000 horse-power, connects it with the plant of the Niagara Falls Power Company, and cables with a capacity of 32,000 horse-power are now installed. A separate transmission line, capacity 25,000 horse-power ,running for 16 miles along the west shore of

the Niagara River to Fort Erie is under construction, together with the towers required to carry the cables across the river to Buffalo. For its transmission lines it has actually expended or is committed by contract to the amount of $430,000.

20. It is now delivering 1,340 horse-power to Canadian tenants, who have the optoin of increasing the amount to 4,237 horse-power. At the present time there is no definite contract covering the sale of the power intended for delivery in the United States. This is explained by the intimate financial relations existing between the Niagara Falls Power Company and the Canadian Niagara Power Company. At the time of the examination it was actually transmitting to the United States about 16,000 horse-power, but the combined load sheet of the two companies shows that the maximum amount thus far delivered to consumers is about 85,000 electrical horse-power.

INTERNATIONAL RAILWAY COMPANY.

21. This company is incorporated both in the state of New York and in the Dominion of Canada. In its first capacity it owns and operates all the electric railways in the city of Buffalo and adjacent towns, and the city of Tonawanda, Erie county, and the cities of Lockport, Niagara Falls, and the intervening territory in the county of Niagara, N.Y. Under its Canadian charter it owns and operates an electric railway along the shore of Niagara river from Chippawa to Queenston. It also owns two bridges over the Niagara river, one just below the falls and one at Lewiston, over both of which it has specific legislative authority to transmit power.

22. Its power plant is located in the Queen Victoria Niagara Falls Park, which plant was acquired when it acquired the property and franchise of the Niagara Falls Park and River Railway Company. In acquiring this railroad it paid for the equity therein, $733,000, and assumed a bonded indebtedness of $600,000, making a total investment of $1,333,000. It is claimed that this value was fixed largely by the power rights of the Niagara Falls Park and River Railway Company. At the time of its acquisition the power plant represented a cash outlay of $141,000. Since that time further expenditures have been made upon its power-house and equipment of $125,000, so that the actual investment of this company in its power property at Niagara Falls, Ontario, is about $265,000. With the machinery now installed 3,600 electrical horse-power can be generated, the effective head being 68 feet. Under its charter, none of the power may be sold, and its use is limited to operating and lighting the railway, the Canadian division of which now uses from 800 to 1,200 horse-power. The company clams the right to transmit the balance to the United States for use on that portion of its system. This right, however, is questioned by the commissioners of the Queen Victoria Niagara Falls Park, and in their annual report for 1905 they say that they cannot see their way clear to approve the plans for the transmission of this power through the park. The matter has been referred to the Dominion government for decision. While it is understood that some progress has been made towards a solution, final action has not yet been taken.

23. The company, in its application to transmit power to the United States, asks for 8,000 horse-power, the intention being to enlarge the power plant for this purpose, at an estimated cost of $150,000. Pending the determination by the Dominion government of this company's rights, it is believed that no permit should be granted to them. Having in mind, however, the fact that they are now generating 2,500 horse-power more than they can use on the Canadian side, and the fact that the transmission of this power to the United States would result in an estimated saving of $30,000 a year, it would seem equitable to reserve 2,500 horse-power for the present of the 160,000 horse-power for which permits can be granted, so that a permit for this amount could be issued in case the present controversy is decided in favour of the railway company.

24. The principal facts with reference to the three big Canadian companies are tabulated as follows:

—	Ontario Power Co.	Electrical Development Co.	Canadian Niagara Power Co.
Expenditures to date in power plants, exclusive of rights and franchises	$5,142,000	$4,500,000	$4,672,000
Amount required to complete existing contracts and orders	$715,000	$1,760,000	$678,000
Amount required to complete plants to projected size	$6,500,000	$1,576,000	$1,250,000
Effective head....feet	180	135	141
Capacity of generating machinery actually installed, electrical horse-power	42,000	.....	55,000
Nominal capacity of generating machinery installed and ordered.....electrical horse-power	66,000	50,000	55,000
Nominal capacity of projected plants.... "	180,000	125,000	110,000
Amount invested and obligated for Canadian transmission lines	a$1,000,000	$2,620,000	a$430,000
Probable sale of power in Canada.....horsepower	10,000	30,000	5,000
Amount of water required for machinery installed and ordered, including exciter sets—efficiency of the unit being taken at 76 per cent. . . . . cubic feet	4,250	4,300	4,500
Amount of water required for plants as projected..... "	11,700	10,800	9,500
Actual expenditures by their associated American transmission companies	$2,785,000	b$246,000	$600,000

a The major portion of this amount has been expended in the construction of transmission lines intended for delivery of power to the United States distributing companies.
b This does not include any expenditures by the Nicholl Syndicate.

25. If these companies were limited in their output to the capacity of the generating machinery now actually installed and ordered, their investment in power plant exclusive of franchises per horse-power developed would be approximately as follows:

Ontario Power Company	$ 89 00
Electrical Development Company	125 00
Canadian Niagara Power Company	97 00

If permitted to develop to the limit of their approved plans the investments in power plant per horse-power developed (nominal capacity) would be:

Ontario Power Company	$68 00
Electrical Development Company	62 00
Canadian Niagara Power Company	60 00

These figures must be considered as only approximately correct, owing to the different methods of cost distribution used by the several companies. The aim has been to take the actual cost of the power plants exclusive of rights, rentals and franchises. Regardless of their absolute accuracy, or even their relative accuracy as between the three companies, they serve to show the extent to which the companies by their expenditures and contracts have committed themselves, and also the approximate losses which they will sustain if they are limited to the production of an amount of power less than their projected capacity. All three of these power developments were undertaken in good faith several years ago and long before the agitation in Congress which led to the passage of the present law, and there is no evidence that any of their subsequent transactions were made with the object of securing rights which they had not always intended to claim.

26. The total capacity of the generating machinery installed and ordered for the three plants is 171,000 horse-power. The probable demand in the near future from Canadian markets will not exceed 40,000 horse-power, leaving 131,000 horse-power for sale in the United States. The granting of permits for this amount would permit the utilization to its full capacity of all machinery now installed or ordered, but would not permit any further development and would not afford a reasonable return on the moneys now invested unless the prices to the consumers were measurably increased. In order that such relief as is now possible may be afforded, it is recommended that

permits be granted for 157,000 horse-power, the maximum amount under the first limitation, less 2,500 horse-power reserved for the International Railway Company.

27. The conditions surrounding the development of the Canadian power companies differ so materially that an exact statement of their relative rights to the American market is not possible. The Niagara, Lockport and Ontario Power Company, the distributing agent in the United States for the Ontario Power Company, has expended a large sum in opening up a new market. The Electrical Development Company started primarily to develop the Canadian market, and its plans for the American market have not yet been fully matured, while the plant of Canadian Niagara Power Company is virtually an addition to thet of the Niagara Falls Power Company. Considering alone the investments in power plant, there is no apparent reason why any distinction should be made between the power companies in the amount of power which they should be permitted to send into the United States. While the projected development of the Ontario Power Company is considerably greater than that of the other two companies, this apparent advantage is balanced by the fact that the other two companies are more fully committed by expenditures already made to the complete development. If the relative investments of the three transmission companies associated with them for distribution in the United States are alone considered, the claims of the Niagara, Lockport and Ontario Company are unquestionably superior to those of the other transmission companies. As the object of the law is to restrict, directly or indirectly, the amount of water diverted, it has been suggested that some weight should attach to the fact that the Ontario Power Company makes greater use of the water that it diverts than either of the other companies. Each of the companies, however, fully utilizes the head incident to its geographical location, and any distinction in the matter of permits based on relative natural advantages would appear to be unjust.

28. The Electrcal Development Company had for its primary object the furnishing of power to various points in Canada, as is indicated by the construction of its Toronto line, yet the demand for electrical power in Canada within the economical radius is so limited as to make it unreasonable to suppose that this company had given no thought to the marketing of a part of its power in the United States. The Electrical Development Company is planning to sell between 30,000 and 40,000 horse-power in Canada, which is probably from 20,000 to 25,000 horse-power in excess of what either of the other two companies will sell in Canada, a fact which should receive consideration in fixing the amount to be transmitted to the United States. On the other hand, any greater discrimination against the Elecrical Development Company, which is owned almost wholly by Canadian capitalists (the other two companies being owned almost wholly by Americans), may give rise to a feeling of resentment on the part of the people of Canada and tend to retard the negotiation of a treaty between the two countries concerning the preservation of Niagara Falls.

29. The application for permits made by the transmission companies are as follows:—

	Horse-power.
Niagara, Lockport and Ontario Company, from the Ontario Power Company	90,000
Electrical Transmission Company, from the Electrical Development Company	62,500
Niagara Falls Power Company, from the Canadian Niagara Power Company	121,500

The application of the Niagara, Lockport and Ontario Company is based upon the desire to secure a reasonable return on the investment already made, but considering the date named in its contract with the Ontario Power Company for the delivery of the second block of 60,000 horse-power, *i.e.*, January 1, 1911, and having in mind the fact that any production of power in excess of 66,000 horse-power means the con-

struction by the Ontario Power Company of a second conduit and a consequent expenditure of $3,250,000, it is believed that a present limitation to 60,000 horse-power will not work undue hardship.

30. The application of the Electrical Transmission Company contemplates the marketing of one-half of the total output of the Electrical Development Company. Considering the situation of the latter company in the Canadian market and the limited extent to which the Electrical Transmission Company has committed itself by its expenditures, a present limitation to 37,500 horse-power does not appear to be inequitable.

31. The plant of the Canadian Niagara Power Company is intended to supplement that of the Niagara Falls Power Company, and a fair estimate of the rapidity with which its power will be marketed is found in the rate of growth in the past of the Niagara Falls Power Company. This has amounted to about 20 per cent in recent years, with a present output of both companies amounting to 85,000 horse-power. Assuming that the same rate of growth will continue, though in all probability it will be reduced owing to power which the other companies expect to market in this territory, it will be two or three years before the full capacity of the Canadian plant as now installed will be utilized. For these reasons a present limitation to 60,000 horse-power will not, in my judgment, seriously interfere with its normal development.

32. If permits are granted for these amounts, the Ontario Power Company would be justified in installing a seventh unit as a spare, the Canadian Niagara Power Company would be justified in installing two more units, one as a spare, making the nominal capacity of its plant 66,000 horse-power. The Electrical Development Company would be justified in installing three more units, one of them a spare, making the nominal capacity of its plant 75,000 horse-power, half of which, the proportion asked for, it would be permitted to transmit to the United States. If each installs these units, the relative investment in power plant, exclusive of franchise, per horse-power developed (nominal capacity) would be :

Ontario Power Company	$92 00
Electrical Development Company	91 00
Canadian Niagara Power Company	87 00

33. Based upon what precedes, it is recommended that permits for the transmission of power to the United States be issued as follows:—

	Horse-power.
Niagara, Lockport and Ontario Company, from the Ontario Power Company	60,000
Electrical Transmission Company, from the Electrical Development Company	37,500
Niagara Falls Power Company, from the Canadian Niagara Power Company	60,000
	157,500

In order that the various companies may proceed with this limited development, it is further recommended that permits for such amounts as may be authorized be issued without delay.

34. As to the question of granting transmission permits for amounts additional to the first 160,000 horse-power, it is believed to be the intent of the law to delay the issue of such permits until it is known what appreciable effect, if any, will be produced on the falls by the diversion of the amount of water that will be used under the first limitation. If this interpretation of the law is correct, the granting of such permits will be a matter for the future, as it will be fully a year before the companies will be in a position to develop 160,000 horse-power, in addition to the amounts sold in Canada.

35. The information contained in this partial report was obtained from the parties interested, and its important features verified by a personal inspection of the works and a general examination of the books and records of the various companies. These inspections and examinations were made July 20 to July 28, 1906, and descriptions of the power plants of the Ontario Power Company (Appendix B), Electrical Development Company (Appendix E), and the Canadian Niagara Power Company (Appendix G), and of the transmission lines of the Ontario Transmission Company (Appendix C), Niagara, Lockport and Ontario Power Company (Appendix D), and the Toronto and Niagara Power Company (Appendix F), in greater detail than in the body of the report, are appended hereto. They were prepared by Mr. Earl Wheeler, E.E., who, with Mr. F. D. C. Faust, a representative of the Department of Justice, assisted in the examination. A photographic copy of a map of Niagara Falls, taken from a monograph prepared in 1904 by the Canadian Society of Civil Engineers, is also appended.*

36. The preparation of that part of the report which concerns the diversion of water on the American side has been delayed by the non-receipt of certain information, and will be submitted later.

Very respectfully,

CHARLES W. KUTZ,
Captain, Corps of Engineers.

Brig. Gen. A. MACKENZIE,
Chief of Engineers, U.S.A.

APPENDICES.

APPENDIX A.

MEMORANDUM OF THE SECRETARY OF WAR.
WAR DEPARTMENT, WASHINGTON, July 14, 1906.

In the matter of the applications for permits under the Act entitled 'An Act for the control and regulation of the waters of the Niagara River for the preservation of Niagara Falls and for other purposes,' approved June 29, 1906.

On the 5th day of July, 1906, in response to applications by the Niagara Falls Power Company and the Niagara, Lockport and Ontario Power Company, a preliminary hearing was had in Washington, D.C., at the office of the Secretary of War, at which were represented the following companies: Ontario Power Company of Niagara Falls, Gen. F. V. Greene, vice-president; Niagara, Lockport and Ontario Power Company, represented by the firm of Cravath, Henderson & de Gersdorff; Niagara Falls Hydraulic Power and Manufacturing Company, Geo. B. Matthews, president; Niagara Falls Electrical Transmission Company, Frank A. Dudley, vice-president; Electrical Development Company of Ontario (Limited), represented by H. H. Macrae; Niagara Falls Power Company, represented by F. L. Lovelace, secretary; Canadian Niagara Power Company, represented by F. L. Lovelace; Niagara Falls Trust Company, representing estate of H. E. Woodford, represented by Frank A. Dudley; Albion Power Company, represented by Frank A. Dudley.

Merely general statements were made, and upon the application of Mr. Stetson, counsel for the Niagara Falls Power Company, and Mr. John G. Milburn, counsel for the Niagara Falls Hydraulic Power and Manufacturing Company, and with the consent of the other parties, a subsequent day for a fuller hearing was fixed on the 13th day of July, at the office of the Secretary of War in Washington, and all parties in interest were required to file their applications and claims for permits, whether for diversion of water on the American side or transmission of electrical power from

* Omitted in this report.

the Canadian side, before the 10th of July with the Secretary of War. Subsequently, and in order that the Secretary of War might visit the *locus in quo,* and understand more clearly the situation, the date of the hearing was changed from July 13 to July 12, at 10 o'clock, in the parlours of the International Hotel at the city of Niagara Falls. Notices of this hearing had been sent to every person known to have any interest whatever in the withdrawal of water from the Niagara river, its tributaries, or the Erie canal, and coming within the provisions and limitations of the law. At the meeting at Niagara Falls the following corporations and individuals were present or represented by counsel.

The Niagara Falls Power Company; the Niagara Falls Hydraulic Power and Manufacturing Company; Canadian Niagara Power Company; the Ontario Power Company of Niagara Falls; Niagara, Lockport and Ontario Power Company; the Niagara Falls Electrical Transmission Company; the Electrical Development Company of Ontario; Albion Power Company; Niagara Falls Trust Company, as executor and trustee of the estate of Henry E. Woodford, deceased; the Niagara Gorge Railroad Company; the Niagara County Irrigation and Water Supply Company; the Lockport Hydraulic Company; the United Box Board and Paper Company; the Lockport Paper Company; the Niagara Paper Mills; Westerman & Company; Arabella A Peterson; the Electric Smelting and Aluminum Company; International Railway Company; the Cataract Hotel Company; Mr. J. Howard Mason, secretary of the Chamber of Commerce of Buffalo; Mr. J. Horace McFarland, president of the American Civic Association of America.

In addition to the persons making applications for the permits, Mr. J. Horace McFarland, representing the Civic Association of America, which had taken an active interest in securing the passage of the law and in the preservation of the integrity and volume of Niagara Falls, was also present and made argument to the secretary on behalf of the public.

There were present to assist and advise the Secretary of War at this hearing, Brigadier-General Mackenzie, Chief of Engineers, U. S. Army, Brigadier-General Ernst, U. S. Army (retired), and member of the American section of the International Waterways Commission, and Mr. George Clinton, of Buffalo, counsellor at law and member of the American section of the International Waterways Commission.

Every person present desiring to present his claims was heard, and stenographic notes were taken of the arguments and applications, and the hearing continued from 10 o'clock in the morning until 2 in the afternoon.*

MEMORANDUM OPINION BY THE SECRETARY OF WAR.

The purpose of the law is to preserve the integrity and volume of the Niagara river which goes over the Niagara Falls, and it contemplates the issuing of permits for the withdrawal of water from the river on the American side, and the issuing of another class of permits for the transmission from the Canadian side, and importation into the United States of electrical current generated by water-power plants on the Canadian side. This latter class of permits is required doubtless on the theory that the restriction of the importation of electrical current will have the indirect effect of restricting the use of water for the production of power on the Canadian side of the Niagara river. Speaking generally, there is an investment of capital of about twenty odd million dollars on the American side, and of about an equal amount on the Canadian side, and the effect upon the profit from this investment by the action of the Secretary of War under the law may be very serious. On the other hand, the public interest in and importance of the preservation of the integrity and volume of the Niagara river are shown by the passage of the Act itself, and the very stringent provisions with reference to its violation contained therein.

* The report of the hearings at Niagara Falls is printed as War Department Document No. 280.

Congress has deputed to the Secretary of War the task of reaching in his permits an equitable result by which the integrity and volume of the Niagara river shall not be seriously impaired, on the one hand, and the capital which has been really invested and involved in the structures now entered upon and the plant now contracted for and the contracts now made may not be so injured in its profit-producing as that this Act may operate as a practical confiscation of property. Even if Congress had the power by legislation of this character practically to destroy the capital which had been invested in power-producing plants, as to which it is not necessary to express an opinion, I feel certain, from the character of the language used, that it was not the intention of Congress to do so. It becomes of the utmost importance, therefore, before the Secretary of War shall decide upon the permits to be granted, that there should be brought to his knowledge exact information with respect to the capital which has been invested in all the power plants, the extent to which these plants are in actual use, the amount of cubic feet of water actually in use, the amount of electrical power actually generated, the contracts made by these companies for the furnishing of power, the dates when the contracts were made, the charters of the companies, and their statutory powers, the extent of horse-power which under their charter or statutory powers they might produce, the amount of actual construction completed, the amount of money invested in partially completed plants, the amount necessary to complete them, the amount of electrical current now being furnished, the amount which can be reasonably furnished with the plant under construction, and the amount that can be sold in the existing markets by these companies and all the other circumstances tending to reflect on the effect which a limitation by a permit will have upon their business.

The limitation upon the permits which the Secretary of War is authorized to grant for diversion of water from the Niagara river for six months is 15,600 cubic feet a second. Of that it i undisputed that the Niagara Falls Power Company is now, and has for some time past, been using and selling 8,600 cubic feet per second. It is also undisputed that the Niagara Falls Hydraulic Power and Manufacturing Company has been using 4,000 cubic feet a second. It is also in evidence, and not disputed, that it is engaged in the construction of an addtional plant in which it has already expended considerably more than a million dollars under a contract to furnish to the Pittsburg Reduction Company the electrical horse-power from the use of 2,400 cubic feet of water a second. It is also in evidence that the Lockport Hydraulic Company is drawing 500 cubic feet a second from the upper level of the Erie canal, the same level as the level of Lake Erie, carrying it around the locks and discharging it again into the Erie canal below Lockport; and that the following companies—the United Box Board and Paper Company, Lockport Paper Company, Niagara Paper Mills, Westerman & Co., Arabella A. Peterson, and the Electric Smelting and Aluminum Company—from the next level of the canal below the high level at Lockport are drawing 333 cubic feet of water a second, which they are discharging into Eighteen-mile Creek and thence into Lake Ontario.

As the law has immediate operation, and as none of this water can be withdrawn on the American side without a permit from the Secretary of War, it is of course necessary to prevent the companies from being put in the position of law-breakers by withdrawing the water which it is absolutely necessary to withdraw to maintain the present *staus quo,* and temporary permits must be issued for that purpose. Accordingly a temporary permit is hereby granted to the Niagara Falls Power Company to withdraw from the Niagara river 8,600 cubic feet of water per second until further action by the Secretary of War. The Niagara Falls Hydraulic Power and Manufacturing Company is hereby authorized to withdraw 4,000 cubic feet a second until further order of the Secretary of War. This company is not now using the 2,400 cubic feet a second, a permit for which is asked for on behalf of it and the Pittsburg Reduction Company, and it is probable that a final decision may be reached before this order needs to be issued, if it is to be issued at all. With reference to the Lockport Hydrau-

lic Company, a permit will issue for the drawing of 500 cubic feet of water from the Erie canal, and permits will also issue for the use of the 333 cubic feet of water from the lower level of the same canal at Lockport by the persons mentioned above, although in my judgment these permits thus made for 833 cubic feet of water are really duplications, so that a permit ultimately for 500 cubic feet of water will cover all the water used by the persons drawing water from the Erie canal in and about Lockport. With respect to the application of the Albion Power Company, I expressed at the hearing the opinion, which I still hold, that its use of the water does not come within the law, and for the present that will be the holding of this department.

With reference to the application of the Niagara Falls Trust Company as executor and trustee of the estate of Henry E. Woodford, deceased, there seems to be no necessity for granting a temporary permit, for the water is not being used, and it is questionable whether a permit is necessary, and, therefore, consideration of this question will be postponed until final decision.

A controversy with respect to permits is likely to arise over the transmission of electricity from the Canadian side, and its importation into the United States. The first limit in the law is the transmission of 160,000 horse-power, and the applicants for permits reach the total of 281,500. These applications are as follows:

	Horse-power.
Niagara, Lockport and Ontario Power Company (Ontario Power Company of Niagara Falls)..	90,000
Niagara Falls Power Company (Canadian Niagara Power Company)..	121,000
Niagara Falls Electrical Transmission Company (Electrical Development Company of Ontario)..	62,500
International Railway Company..	8,000
	281,500

It is necessary that the Secretary of War should know, before final action is taken by him, in the matter of permits for transmission, the capital already invested in the Canadian companies, the degree of completion of the plant, the amount likely to be sold on the Canadian side of the current, the time when the plant shall be ready for operation, the amount now actually produced, the amount now actually transmitted to the United States, the amount invested not only in the production of the current, but in the plant and machinery for its transmission, including the poles and wires, and all the details; and also the capital invested by the American companies who are to receive in the first instance the current thus produced, the form in which that capital is, and the contracts into which they have entered both with the Canadian companies and with the companies or persons to whom they expect to sell the current, the dates of these contracts and all the circumstances tending to show the extent of the injury that a refusal to grant the permits requested would cause to the investment of capital, together with the question of when the contracts were made upon which the claims for the use of current are based, with a view to determining the good faith with which these contracts were entered into, and whether the threatened passage of the law induced their making.

For the purpose of advising the Secretary of War upon the facts and circumstances hereinbefore referred to, the importance of which has been pointed out, Capt. Charles W. Kutz, of the Corps of Engineers, under the direction of the Chief of Engineers, is hereby ordered to institute an investigation bearing upon all the questions hereinbefore described. He is authorized, with the approval of the Chief of Engineers, to employ an expert accountant at a reasonable rate of pay to assist him in the examination which he is directed to make, and to incur other necessary expenses to be paid out of the appropriation of $50,000 made by the Act of Congress under which this proceeding is had.

A full report upon the questions presented will be submitted to the Secretary of War, through the Chief of Engineers, at as early a date as a thorough investigation and consideration will permit; and this report will thereafter be submitted to the American members of the International Waterways Commission for consideration and recommendation.

So far as I can determine from the statements of fact in the printed applications and in the oral statements, at present electrical current is not being produced on the Canadian side for use upon the American side, except by the Canadian Niagara Power Company and the Ontario Power Company of Niagara Falls. The Canadian Niagara Power Company is producing and transmitting about 16,000 horse-power daily, while the Ontario Power Company is certainly not exceeding this, though the capacity of both companies for production and transmission when the plants which are under construction are completed, as they will be in the near future, will much exceed these amounts. For this reason I hereby grant a temporary permit to the Niagara Falls Power Company to take by transmission from the Canadian Niagara Power Company not to exceed 25,000 horse-power of electrical current daily. I hereby grant a permit to the Niagara, Lockport and Ontario Power Company the right to receive and take by transmission into the United States electrical current equivalent to 25,000 horse-power daily from the Ontario Power Company of Niagara Falls, Canada. It is thought by the permits hereinbefore granted that the *status quo* will be maintained without injury either to the public or to the private interests concerned.

A copy of this order will be sent to all the parties in interest, including Mr. J. Horace McFarland, president of the American Civic Association.

WM. H. TAFT,
Secretary of War.

Appendix B.

THE WORKS OF THE ONTARIO POWER COMPANY OF NIAGARA FALLS.

The present design consists of headworks located in the smooth water of the upper river above the first line of rapids and opposite the Dufferin Islands; three main conduits which lead the water through the park to a point on the cliff below the falls to the valve chamber, thence by penstocks in vertical tunnels through the cliff to a point on a level with the turbines in the power-house, from which point it is carried through horizontal conduits to the turbines; a generating station in which are the turbines and generators; and lastly a distributing station on the high bluff above, to which the electric cables are carried from the generating station in inclined tunnels.

The design that is at present being carried out is for the development of 180,000 electrical horse-power.

THE HEADWORKS.

The headworks consist of an intake proper, an outer fore bay, a screen house, an inner fore bay and gate house. The main intake, which is 618 feet long, consists of concrete piers supporting a continuous reinforced concrete curtain wall, which extends vertically downward 7 feet below the normal surface of the river and within 6 feet of the river bed and upward 5 feet above the normal river level, which has an elevation of about 560 feet above sea level. The intake proper makes an acute angle with the direction of flow of the water in the river of about 30°.

The outer fore bay has for its boundary the original river bank and an artificial island on one side, and the intake and overflow dam on the other. This fore bay has an area of about 8 acres. The gathering wall or overflow dam, except in extremely low stages of water in the river, will be constantly submerged, water spilling freely over it into the river as over a weir. The main portion of the wall has an elevation of 553 feet above sea level. The last 100 feet of this wall adjacent to the screen house is constructed with the top somewhat depressed below the crest of the main portion.

This allows a much heavier flow of water adjacent to the screen house for ice-clearing purposes, while it also creates a strong current across the front of the screen. The screen house contains the main screens for the inner fore bay, which screens are in the form of steel grillage set on inclined guides in concrete masonry and are removable by means of an electrical travelling crane. The screens are covered by an artificial stone building, the roof of which forms a broad promenade which is open to the travelling public. The inner fore bay, which extends from the screen house to the gate house, has an area of approximately 2 acres. The landward and river walls are partly formed by excavation in the rock and partly by concrete. The elevation of the water in the inner fore bay is 560 feet.

The quantity of water which will be drawn into the inner fore bay when the entire capacity of the plant is to be generated has been estimated to be about 12,000 cubic feet per second. The depth of water at the intake in the outer fore bay is about 13 feet, while at the intake to the gatehouse it increases to approximatly 30 feet.

The gatehouse is completed for the three main conduits, one of 18 feet diameter and the other two of 20 feet each. There are installed at present in this building the gate for the 18-foot conduit only. The screens, however, are complete for all three main conduits. The elevation of the centre line of pipes at the head block is 534 feet. The gates and screens are covered by a substantial building, and boilers and steam pipes are installed for heating both screen and gatehouses.

MAIN CONDUITS.

From the gatehouse to the valve chamber, a distance to the nearest penstock of 6,180 feet, there are to be placed three five-tenths inch riveted and reinforced steel pipes, embedded in concrete, one of 18 feet in diameter and the other two of 20 feet in diameter each. The 18-foot conduit is installed and in operation at the present time. This conduit is capable of carrying 3,900 cubic feet of water per second. The fall between the gatehouse and the spillway or valve chamber is 28 feet. The velocity of water in the conduits is estimated to be approximately 15 feet per second. The conduit now constructed is built of steel plates five-tenths inch in thickness with double-riveted joints: To secure additional thickness seven deck beams are riveted to the upper part of the plate at intervals of 4 feet throughout its entire length. The pipe is erected in a trench excavated in the park.

From the under side of this conduit 7 penstocks, each 9 feet in diameter, drop through vertical shafts and out through horizontal tunnels in the solid rock of the cliff to the generating station. There are four penstocks installed. Each penstock supplies water for a 10,000 horse-power unit. The vertical distance from the centre of the main conduit to the turbine is 133 feet. From this conduit are also two small penstocks of 30 inches in diameter, each leading through an inclined tunnel to the generating station. They supply water to the two exciter turbines.

The plan of the main valve chamber, which is situated beneath the main conduits, is for three separate chambers, each located below its own conduit and opposite the section of the power-house which it controls. There are to be installed in this valve chamber a 9-foot gate valve and operating mechanism for each penstock. There is excavated at present the complete valve chamber for No. 1 conduit and rough excavation for No. 2 valve chamber, which is back filled. There are installed in No. 1 valve chamber 8 valves, one of which is to be connected in No. 2 conduit. There are 7 valves and penstocks connected to No. 1 conduit. An extra valve is installed on the seventh unit so that it can be operated through either No. 1 or No. 2 main conduits. No. 1 valve chamber is therefore complete for 7 units with the exception of valve motors for three of the valves.

THE GENERATING STATION.

The building is of a flat-roof Egyptian architecture, measuring 76 feet wide, 65 feet high, and for the full capacity will be about 1,000 feet in length. The floor

level is 25 feet above the normal level of the river. There is completed at present the structure and foundation of the generating station for 6 units and the excavation for 8 units. The main generators and their turbines, directly connected, are placed on the main floor of the station. Each unit consists of a pair of Francis turbines mounted on a horizontal shaft, operated at 187½ revolutions per minute, and rated at 11,000 horse-power. They are made by J. M. Voith & Co., Heidenheim, Germany. Before reaching the turbine the penstock supplying it divides into two branches, leading to the runners that constitute one complete turbine. The water flows to casings on the outside of each turbine runner, and then inwardly to the common concrete draft tube, which terminates in a tail race in the foundation of the generating station, which tail-race discharges over a weir wall into the river. The elevation of this weir is 349 feet, and under full-load conditions the water rises to an elevation of 353 feet, giving as a gross head between inner fore bay and tail-race water levels about 200 feet. The value of the effective head on the turbines has ranged from 175 to 190 feet. The engineers of the company state that the effective head at full load is 180 feet.

The first three generators are rated at 7,500 kilowatts, 3 phase, 25 cycle, 12,000 volts. The fourth unit is, and the following units will be, of the same voltage, phase, and frequency, but rated at 9,000 kilowatt capacity. The change in capacity of generators is due to the turbines being of a greater capacity than their designed capacity. The generators are of the horizontal, internal revolving field type, having 16 poles. They are made by the Westinghouse Electric and Manufacturing Company, Pittsburg, Pa.

On a raised gallery 11 feet above the main floor and extending along the rear wall of the station are located the exciter units and the governors for regulating the speed of the main turbines. There are two turbo-exciter units, each of 300 kilowatt capacity, giving direct current at 250 volts. The turbines of these sets are 600 horse-power capacity, inward-flow type. Each exciter unit has sufficient capacity for exciting 7 generators. Both of these exciters are being run at the present time; one is carrying direct current auxiliary load throughout the plant and the other the exciting load. There are switch-boards installed in the power-house for controlling the two exciter units and one for service requirements in the valve chamber and power-house, which service includes valve motors, operation of cranes, arc lighting, elevator purposes, and pumps.

There are installed at present 4 main units of a generating capacity of 42,000 electrical horse-power, 3 of which are complete and ready for developing power. The fourth is complete with the exception of a penstock elbow, which will be installed in a few days. The apparatus and switches for controlling the 2 exciter units are complete and installed. There is remaining space in the present building for 2 more generating units of 12,000 electrical horse-power capacity each. The total capacity of plant under contract is therefore 66,000 electrical horse-power.

THE DISTRIBUTING STATION.

At a distance of 550 feet back from the generating station and on a bluff at an elevation of about 250 feet above it is located the transformer and distributing station. These two buildings are connected at present by one cable tunnel from the power house to the valve chamber and one conduit run from the valve chamber to the distributing station. The main controlling cables and service cables are installed complete for four units. There is on the ground cable for two more units. The capacity of this cable tunnel and conduit run is for 8 generating units. Each generator has two cables in parallel, each a 3-phase cable of paper insulation and lead sheathing, with two spiral tapes, and a jute covering over all serving as armour, each copper conductor being of 250,000 circular mils cross section. The cables are laid in tile ducts embedded in the sides of the tunnel. The building of the distributing station is complete for 12 generating units, 8 at high voltage and 4 at low voltage. The control section is com-

plete for 22 units. The 8 high-tension units are to be placed 4 in each wing; the 4 low-tension units are to be used for distribution at 12,000 volts for the Canadian service, and will be taken through the distributing station on the ground floor of the control section. The upper and central floors of this control section will contain the complete controlling apparatus for 22 units.

There is installed at present in this control section complete control apparatus for 4 units. In an east room the automatic oil switches for the 12,000-volt circuits are mounted in an isolated group for each unit. They are of the 3-pole, vertical magnetically actuated type. The transformers occupy the central room through the length of the building except in the middle, which is the control gallery. Fire-proof masonry walls separate low-tension switch room, control gallery, the two transformer rooms, one in each wing, and the high-tension switch rooms, one in each wing, from one another. There are to be for each unit for high-voltage service a bank of three single-phase transformers, each having a capacity of 2,500 kilowatts. Each bank of three is set in a concrete pit. They are of the oil-insulated, water-cooled type.

The primaries are delta connected for 12,000 volts, and the secondaries for a voltage of 36,000 volts each, so that when Y connected there is a voltage of 60,000 volts between wires. There are to be three pole high-tension switches of special design to break the maximum current of 10,000 horse-power connecting the secondary coils of the transformers to the high-tension bus bars. The high-voltage transmission circuits will be taken off from the bus bars. There are now installed complete in the central portion of the south wing, four sets of transformers for high-voltage service. The north central wing has no apparatus installed at present. The control section has installed control panels and instrument posts for 4 units, 3 panels suitable for 4 high-voltage lines and 2 low-voltage lines. Each of the latter panels is equipped for two transmission lines. There are also installed a direct-current-service switch board and an alternating-current-service switch board for the generating and distributing stations.

Appendix C.

THE ONTARIO TRANSMISSION COMPANY.

The Ontario Transmission Company is the distributing company of the Ontario Power Company, in Canada. The capacity of their transmission lines for Canadian distribution aggregates about 6,000 horse-power.

The lines that are installed or are being installed are the following: One circuit to Welland, a distance of 14 miles, the conductor being a 345,000 circular mils aluminum cable, which is equivalent in cross section to a No. 0000 copper cable; two branch lines from Allanburg, which run to St. Catharines and Thorold, the conductors of which are 70,000 circular mils aluminum, and the transmission line is 9·2 miles in length. These two transmission lines are being designed to deliver power at 12,000 volts. The 345,000 circular mils aluminum line, carrying current at 12,000 volts, has a capacity of 3,000 electrical horse-power, with the assumed drop, while the 70,000 circular mils line, at the same voltage and same drop, has a capacity of 600 electrical horse-power. These transmission lines are wooden-pole structures, being 30 feet high and 175 feet span.

There are also two 12,000 volt, wooden-pole lines running from the distributing station to the international boundary, a distance of 6 miles. The conductors of this circuit are 70,000 circular mils aluminum, which is equivalent to No. 4 copper. The nominal capacity is 600 electrical horse-power. They are intended to supply current for manufacturing interests in Niagara Falls, Ontario, and also for some American delivery at 12,000 volts.

All of these pole lines for part of their distances are constructed on the public highways. There are now installed two 60,000-volt individual steel-tower transmission lines from the distributing station to the international boundary, a distance of 6 miles.

The conductors of these lines are 820,000 circular mils aluminum, which is equivalent to 500,000 circular mils copper. Each 3-phase circuit has a nominal capacity at the assumed economic drop of 35,000 horse-power.

This line is constructed on individual steel triangular cross-section towers 40 feet in height, with 550 feet span. The conductors are placed so that they form an equilateral triangular cross-section with the apex of the triangle above. The wires are 7 feet apart, and lines are 26 feet 8 inches, centre to centre. These lines are constructed on a private right of way 300 feet wide.

At the Canadian bank of the Niagara river there is a set of high-tension bus bars arranged on poles in the open. Immediately beyond these are installed 3 cantilever structures anchored to the solid rock of the bank, over which structures, the 3-phase circuits are carried to standard steel towers set in concrete on the edge of the river bank below. From these standard towers the circuits are carried to the American side to a similar construction, the wires being approximately 60 feet above the level of the river. Three crossings have been installed.

Appendix D.

THE LINES OF THE NIAGARA, LOCKPORT AND ONTARIO POWER COMPANY.

From the 3 cantilever structures on the American bank of the Niagara river at the crossing point this company takes the current through a system of bus bars to the switching station. This station at present is under construction, the building only being completed. Between the cantilever terminals and the switching house are installed complete 'Horn' lightning arrester equipments.

From the switching station to the Lockport substation, a distance of 16·76 miles, there are constructed two steel-tower transmission lines on a right of way 300 feet wide. This transmission line consists of individual triangular steel towers, each carrying a 3-phase circuit whose conductors are 642,000 circular mils aluminum, having a nominal capacity of 30,000 horse-power with the assumed economic drop.

At Lockport there is a switching and transforming station for the Lockport service. This station has installed three 750-kilowatt transformers, or a total of 3,000 electrical horse-power. The building is constructed for twice this capacity, or 6,000 electrical horse-power.

At this point in the line, a branch line for the Lackawanna Steel Company is taken off. There are being built two 3-phase circuits on a right of way 100 feet wide. The total length of the line is 27 miles. The conductors are 642,000 circular mils aluminum cables, with a nominal capacity of 30,000 horse-power per 3-phase circuit. This transmission line is constructed on A-frame individual steel towers 40 feet in height, with a span of 550 feet. The towers are about 60 per cent installed, while the work of installing the cables was being commenced at the Lockport end.

The Syracuse system does not enter the switch or terminal station at Lockport, but continues on a 200-foot right of way, there being two steel-tower lines constructed at the present time. This tower construction is similar to the construction from the switching station at the international boundary to Lockport. Each pole line carries three 428,000 circular mils aluminum cables, with a nominal capacity of 20,000 horse-power. This section of the line runs 11·1 miles east of the Lockport substation, at which point (C) it branches into two separate lines on separate rights of way. From point C to Mortimer, a distance of 45½ miles, there is one steel-tower transmission line constructed on a private right of way 200 feet in width, the line being composed of three 428,000 circular mils aluminum cables. From point C there is also a single steel tower line on a 20-foot right of way, to the right of way of the West Shore Railroad, a distance of 9·34 miles, and continuing on the right of way of the West Shore Railroad to Churchville, a distance of 25·4 miles. From point C to Churchville this

line is single steel-tower construction carrying three 428,000 circular mils aluminum cables. At Churchville the line crosses the West Shore Railroad and continues on a 50-foot right of way to Mortimer, a distance of 11·25 miles. On this right of way there are two lines under construction, both carrying 428,000 circular mils cables. At Mortimer is intended to be a junction of the main line to the West Shore division line.

From Mortimer to the crossing of the New York Central Railroad, 7·2 miles east of Mortimer, the wooden-pole line carrying 428,000 circular mils cables is continued. At this point the size of the cable falls to 214,000 circular mils aluminum, with a nominal capacity of 10,000 horse-power. From Fairport this line is continued with the same size cable on the right of way of the West Shore Railroad to Syracuse, a distance of 67·95 miles. From Fairport there is intended to be constructed a main line on a right of way somewhat south of the West Shore Railroad. This line will be a one steel-tower line of 428,000 circular mils, to be constructed on a 75-foot right of way 76 miles in length. The right of way is being secured at the present time. This will join the West Shore line at a point just outside the city limits of Syracuse.

It is the practice of this company to place their transmission lines upon the right of way 26⅔ feet from centre to centre, beginning 10 feet from one edge of the right of way. Throughout the approved right of way they have constructed a patrol road and telephone lines, except on some branch lines and on the West Shore Railroad.

THE BRANCH LINES.

There are under construction branch lines from the switching station to Niagara University over an easement right of way a distance of four-tenths of a mile; from the Lackawanna line to Depew over an easement right of way 5 miles in length; from Oakfield to Batavia over an easement right of way 8·6 miles in length; from Mortimer to Geneseo over a private right of way 20 feet wide, the line from Mortimer to Geneseo being 13·4 miles in length and the second branch, to Caledonia, 5·8 miles in length; from Weedsport to Auburn over a 20-foot private right of way 6·5 miles long; and from near Warner to Baldwinsville over a 20-foot private right of way a line 4:6 miles in length.

All of these lines are to be single 3-phase circuits, of No. 4 B. & S. copper conductors, erected on wooden poles. The nominal capacity of these lines at 60,000 volts with the assumed economic drop, is estimated to be 3,000 electrical horse-power each.

Appendix E.

THE WORKS OF THE ELECTRICAL DEVELOPMENT COMPANY OF ONTARIO.

The water is diverted for this development at Tempest Point, midway between the headworks of the Ontario Power Company and the Canadian Niagara Power Company. The general design is a gathering dam to gather the water from the rapids; two fore bays the entire length of the power-house, the inner one of which is under the power-house structure; a wheel pit containing vertical Francis turbines; two tail-race tunnels, joining into the main tail-race tunnel which discharges under the Horshoe Falls.

THE HEADWORKS.

The gathering dam is 785 feet long and its maximum height is 27 feet. It is expected that 3 to 8 feet of water will be flowing over it, depending upon the condition of the river. Adjacent to the power-house the dam is cut away 3 feet below the level of the main crest for a length of 30 feet, so that there will be 3 feet additional depth of water to carry away the ice from in front of the power-house.

The outer fore bay has for its outer wall submerged arches. At the north end of this fore bay is a spillway for the ice and floating materials that pass through the sub-

merged arch curtain wall, to be returned to the river above the falls. In addition to the first line of submerged arches just referred to, a second submerged arch curtain wall has been constructed outside of the racks. This inner fore bay is covered by the main power-house structure. At the north end of this fore bay is a spillway similar in construction and purpose to the one for the outer fore bay. The fore bays and gathering wall are completed for the entire installation. It was expected that water would be turned into the fore bays during the first week of August.

THE SCREEN HOUSE.

The screen house, which is under the main power-house roof, extends the entire length of the building. It is equipped with a travelling crane for handling the screens which set on inclined guides in concrete masonry. Immediately in the rear of these racks are the cast-iron bell mouths, which in turn join to riveted steel penstocks 10 feet 6 inches in diameter, one for each turbine. At the head of each penstock is a vertical electrically operated gate to control the water.

The masonry for this inner fore bay and screen house is complete for the entire installation.

THE WHEEL PIT.

The wheel pit is 416 feet long and 22 feet in width inside of the brick lining, which is 2 feet thick. It is spanned by masonry arches at 3 levels to carry the machinery. Both ends of the pit are also closed by arched wall linings.

TAIL-RACE TUNNELS.

There are two side tunnels, one on each side of the wheel pit, one for 5 units and one for 6 units. They come together 150 feet north of the wheel pit and merge into the main tunnel. The 5-unit tunnel is 514 feet long, and the 6-unit tunnel is 524 feet long, which lengths are measured from the end of each tunnel to the junction with the main tunnel. These tunnels are each 25 feet deep, of horseshoe cross section, and vary in width from 66 to 30 feet. At the junction the tunnel is 35 feet wide and 25 feet 6 inches high, and tapers to a width of 23 feet 5 inches and a height of 27 feet, which section is carried to the edge of the falls, a distance of 1,935 feet. The slope of this main tail-race tunnel is 5·5 feet per 1,000. The velocity of flow is estimated to be about 26 feet per second. The tunnel has a lining 2 feet thick throughout of concrete faced with brick, except for 300 feet at the north end where the lining consists of concrete rings in 6-foot sections, which are expected to break off as the falls gradually wear away.

TURBINES.

There will ultimately be 11 twin vertical Francis internal-discharge turbines, 5 4 inches in diameter. Their nominal rating is 12,500 horse-power, running at 250 revolutions per minute.

There is a single cast-iron draft tube 9 feet in diameter for each wheel and they discharge alternately underneath the east and west tail-race tunnels. The object of this under discharge is to seal the draft tubes, preventing loss of vacuum, without the necessity for a tail-race weir. By using the two tunnels it is possible to shut off the water entirely from one-half of the wheels without interfering with the other half. A gate has been provided at the end of each tunnel, in case there should be extreme back water in the main tunnel. The wheel pit is not connected to the tail-race, and therefore the hydraulic apparatus can never be flooded out.

There are now being installed 4 turbine units. The turbines are furnished by the I. P. Morris Company, of Philadelphia.

GENERATORS.

The power of the water wheels is delivered to the electrical generators, which are on the ground floor, through vertical shafts 150 feet long, consisting of riveted steel tubes 30 inches in diameter between bearings, and solid shaft 14½ inches in diameter at the bearings. This shaft is held by guide bearings resting on concrete arches. The deck immediately below the generators carries a thrust bearing 37½ inches in diameter, fed by oil under pressure of 350 pounds per square inch. This bearing is sufficient to carry the weight of the entire revolving parts in case of failure from any cause of the water-thrust bearing in the turbine.

There will be eleven 8,000 kilowatt generators of the internal revolving field type, revolving at 250 revolutions per minute. They deliver three-phase alternating current at a periodicity of 25 cycles and potential of 12,000 volts. There are now being installed by the makers, the Canadian General Electric Company, four of these generators.

EXCITER PLANT.

The plan for the exciter installation of this plant is for 2 turbine-driven and 2 motor-driven exciters. The turbine-driven generators are of 300 kilowatts each, giving direct current at 125 volts. The turbines for the two exciters are installed complete. One of the exciter generators is on the ground and the other is being shipped from Peterborough, Ontario. The turbines are built by the I. P. Morris Company, and the generators by the Canadian General Electric Company. Any two of these exciters, either motor or turbine-driven, will excite the entire plant of 11 units.

SWITCH BOARD.

The control switch board for the entire plant, including transformers and transmission lines, is located in the centre of the power-house where the operator can see the entire installation. It consists of an inclosed compartment with a bench board in front. The indicating instruments are on the face of the board, while the recording instruments are on the back. The board is of black enamelled slate, and together with the instruments, is made by the Canadian General Electric Company. Dummy bus bars and signal lamps on the bench board clearly indicate to the operator the connections in the station, and the instruments are so located that each is over the switch that controls it.

The slate of the entire switch board is installed for the entire 11 units. Instruments, switches, &c., for the 4 units and the exciters are on the ground and are nearly installed. The oil switches and their wiring are installed for 2 units, ready for service, and the installation for the other two is being pushed. All the parts of the switches and of the wiring are on the ground and are waiting for the completion of the concrete work before they are installed. The power-house bus bars and generating oil switches, voltage, and current transformers are located immediately below the power-house floor in brick compartments.

POWER-HOUSE STRUCTURE.

The power-house is built of steel and cut stone. It is to be about 500 feet long and 70 feet wide. The height will be 40 feet, except at the centre and end faces. The central bay will give room for the offices of the power company as well as the main entrance, which bay will stand out from the face of the building. This bay will also afford space for the switch-board and auxiliary apparatus.

The contract for the steel and stonework is for two-thirds of the main building, which contract is approximately 50 per cent completed. The steel work is entirely completed at the present time for two-thirds of the building, while the stonework is about 50 per cent completed.

UNDERGROUND CABLE SYSTEM.

The power-house is connected by 4 underground conduits to the transformer house, which is situated upon the hill back from the river, and the buildings are 1,817 feet apart. The design calls for 4 underground conduits, one of which will be in reserve, so that the plant will not be crippled unless 2 conduits simultaneously fail.

At present 2 conduits only are being constructed, each with 16 4½-inch ducts placed 2 wide and 8 deep. The manholes are common to the 2 conduits and are divided into two parts by a central partition, so that one duct system will not be damaged by the burning out of the other. These two conduits are completed except for the crossing of the Ontario Power Company's pipe line, and that will be completed by August 15. At the present time the cable for construction of the four machines is about 75 per cent completed, while all of the cables for these four machines are on the ground.

TRANSFORMER HOUSE.

The transformer house is on top of the bluff outside of the Queen Victoria Niagara Falls Park limits, and is designed to accommodate fifteen 2,670 kilowatt single-phase transformers. These transformers are of the oil insulated water-cooled type, and are wound for 10,000, 11,000 and 12,000 volts primary, and 40,000, 50,000 and 60,000 volts secondary. They will be connected in delta on both primary and secondary windings. The transformer building is completed for the installation of 5 units or 62,500 horse-power.

There is on the ground 1 bank of three transformers, which are being installed; a second bank of three will be shipped by August 1, and the third bank about August 15, from the makers, the Canadian General Electric Company, of Peterborough, Ontario. It is estimated that the electrical installation of this transformer house is about 43 per cent completed at the present time.

Each transformer is placed in a separate closed fire-proof compartment, so as to minimize the fire risk and prevent the possibility of trouble in one transformer being communicated to others. The transformers are mounted on rails arranged to slide out of the compartments into the gangway, where they can be readily handled by an overhead travelling crane. Piping for oil and water for the transformers is in the basement of the building and in the hall of the transformer compartments.

Appendix F.

TORONTO-NIAGARA POWER COMPANY.

This company, which transmits the power developed by the Electrical Development Company to Toronto, is constructing a transmission line on right of way 80 feet wide from the transformer house above mentioned to Toronto.

The design is for two steel-tower transmission lines, each tower line carrying two 3-phase circuits of 190,000 circular mils copper conductor. These two lines are to be built so that an interurban double-track electric railway can be built between them on the same right of way. The standard distance between poles is 400 feet, there being, however, much longer distances at river and ravine crossings. The height of the standard tower, which is of the A form, is 40 feet above the ground.

There is at present being constructed one of the transmission lines with a capacity of 20,000 electrical horse-power, each 3-phase circuit being designed to carry one-half the load, or 10,000 electrical horse-power. The loss of power when each line is transmitting its full load of 10,000 horse-power will be less than 10 per cent, while either line can transmit 20,000 horse-power with less than 20 per cent loss.

This transmission line between the transformer house and Toronto is about 90 per cent completed. It is completed from the Niagara end to Burlington Beach and from the Toronto end to Burlington Beach. There are about three division houses

along the line, dividing it into four sections, any one of which can be cut out for inspection and repair. A lineman will patrol each section daily after the transmission line is in operation.

Appendix G.

THE WORKS OF THE CANADIAN NIAGARA POWER COMPANY.

The general design of this company is an ice rack on the shore line; a short canal which widens into an outer fore bay the entire length of the power-house; an inner fore bay, screen frames, and penstock gates, all of which are located in a low bay adjacent to the east side of the main power-house structure (the outer wall of this bay being a submerged arch curtain wall); a sluiceway at the north end of the inner fore bay for leading the waste water and ice back to the river above the falls; a wheel pit capable of containing eleven 11,000-horse-power vertical twin turbines, which are directly connected to alternators of the same capacity on the main floor by means of hollow shafting and thrust bearings; a Queenston limestone power-house to cover the wheel pit and house the generators and controlling apparatus, and lastly a tail-race tunnel—horseshoe cross section—which leads the water from the turbines to the lower river.

HEADWORKS.

The power-house is built parallel to the river and about 400 feet from its bank. The water is taken from the river into an outer fore bay through the ice racks and a canal 282 feet in width and 15 feet in depth. The ice rack is constructed on cut-stone piers, eleven in number, on the shore line. It is made of steel rods set at an angle of about 30° from the horizontal. Ninety-two feet back from the ice rack is the five-span stone-arch bridge which carries the tracks of the Niagara Falls Park and River Railway, the carriage road, and sidewalk. Immediately after passing under this bridge, which is 73 feet in width, the canal widens into a fore bay 600 feet wide, which extends the entire length of the power-house. The headworks are built of massive limestone masonry.

The inner fore bay, screens, and penstock gates are in a low bay adjacent and joining the main power-house structure on its entire east side. The outer wall of this structure is a submerged arch curtain wall, there being two arches for each penstock. The structure, equipment, and masonry of this bay is complete for 5 units, while the masonry of the curtain wall, screen racks, and penstock mouths is also complete for the other 6 units. At the north end of the inner fore bay is an overflow weir which can be used in combination with floating booms to draw floating materials and ice that get into this fore bay back into the river above the falls by means of a sluiceway channel. This channel is 16 feet wide and 300 feet long.

WHEEL PIT.

The wheel pit is 165 feet deep, 18 feet wide inside of the brick lining and 570 feet long. The sides were channeled in 6-foot cuts. There are five chambers for auxiliary machinery excavated in the east side of the wheel pit. The three in the portion of the wheel pit that is used at present are occupied as follows: No. 1. By the three exciter units; No. 2. By the circulating water pumps, for pumping the water that is used for cooling purposes in the transformer house; No. 3. For the oil pumping apparatus. A regulating gate is installed at the end of the wheel pit to maintain the level of the tail water at a sufficient height at all loads to cover the mouths of the draft tubes.

THE TUNNEL.

The tunnel which leads the water from the wheel pit to the lower river is 2,200 feet long and of a horseshoe cross section, 25 feet high and 19 feet wide, being lined

with 17 inches of concrete with vitrified brick facing, except for 100 feet at the river end, where the tunnel drops by an ogee curve into the river. This portion is lined with 2 feet of granite, and a massive head wall 60 feet long by 12 feet thick extends from 20 feet below the bottom of the tunnel to 10 feet above it, making a total height of 55 feet, of which 34 is below normal water level. The grade of this tunnel is 7 feet per thousand, which will give the water a velocity when the plant is in full operation of about 27 feet per second. The tunnel is excavated through limestone rock and black shale.

The hydraulic portion of the development of this company, with the exception of the turbines for the remaining six units, is complete for the development of 110,000 electrical horse-power.

POWER-HOUSE.

The power-house structure, as built at present, is complete for five units. It is a one-story structure built of Queenston limestone and roofed with tile. The inner fore bay and screen house are covered by an addition which is supplementary to the main power-house. The building is lined inside with mottled buff brick, enamelled brick, and marble. The main power-house has installed two 50-ton electric cranes for service in the installation of machinery.

HYDRAULIC MACHINERY.

The entire development calls for eleven 11,000-horse-power vertical twin Francis inward-flow turbines. There are five installed. These machines were designed by Messrs. Escher, Wyss & Co., of Zurich, Switzerland. The first three were manufactured and installed by this firm, while the latter two are of the same design but were built and installed by the I. P. Morris Company, of Philadelphia, Pa.

The water is led to each turbine by means of a single vertical penstock 10·2 feet in diameter, the mouth of which is laid in the inner fore bay behind the screens. Each penstock has its individual electrically operated gate. The water is discharged from the turbines into two draft tubes, one on each side of the pit and discharging into the open tail-race below. The effective head at full load is stated to be 141 feet.

GENERATORS.

The generators are the internal revolving field type, and have a nominal capacity of 8,250 kilowatt. They are designed to run at 250 revolutions per minute, giving 25 cycle, 3-phase current at 12,000 volts. The generators have an efficiency at full load of about 98 per cent and a regulation on full noninductive load of about 8 per cent. The armatures are connected Y, and the neutral is brought out so that it can be grounded if desired. The generators were built and installed by the General Electric Company, of Schenectady, N.Y.

SWITCH BOARD.

From the generators the current is led through varnished cambric, insulated cables to double-throw selector oil switches and thence to the bus bars, of which there are four sets. The switch board consists at present of 5 generator panels, 20 feeder panels, 10 recording wattmeter panels, and 3 bus bar interconnecting panels. It is seen from this that each panel is distinct and contains no instruments or switches except those belonging to the particular feeder or generator in question.

The present equipment of the power-house comprises 5 units, and this group and its switch board is considered as a complete plant. The other 6 units are to have an entirely separate switch board, separate exciter plant, and in fact will be a separate plant in itself. This separation is made for the reason that 50,000 horse-power is

believed to be as large a block of power as should be under the control of a single switch board and its attendant.

EXCITER PLANT.

The exciter plant is located in a compartment near the bottom of the wheel deck at the turbine deck level. There are three 200 kilowatt, 125 volt D. C. generators, each connected to an independent vertical turbine. Any two of these units will carry the entire direct current load of the plant as at present installed. These exciters are developing at the present time about 200 horse-power, which is used for the excitation of generators and the operation of auxiliary apparatus around the plant. They are, therefore, using about 17 cubic feet of water per second. There are two sets of exciter bus bars, one of which operates the generator fields and the other the D. C. power system, including motors and arc lights. The current is carried up the pit to the main floor of the power-house through a system of vertical copper bars supported every 10 feet.

UNDERGROUND-CABLE SYSTEM.

All the power from the power-house is transmitted underground by means of No. 000 B. & S. paper-insulated, 3-conductor, 12,000-volt, lead-covered copper cables. The feeders are divided into two groups. One set leads from the north end of the power-house through Victoria Park and across the upper steel-arch bridge to the plants of the Niagara Falls Power Company, with which they are interconnected. The other group runs south, up the high bank above the power-house, to the transformer-house there located.

There are installed at present 8 underground cables for transmitting power to the United States by way of the upper steel-arch bridge. Each of these cables has a capacity of 4,000 electrical horse-power, making a total cable capacity at present for transmission of power into the United States of 32,000 horse-power. There are conduits laid between the Canadian and American plants, which conduits cross the river at the upper steel-arch bridge and which are designed to contain 32 cables like those already installed, making an aggregate conduit capacity by way of the upper steel-arch bridge of 128,000 horse-power.

There are conduits laid between the power-house and the step-up transformer house, which conduits are capable of containing 32 cables with a total carrying capacity of 128,000 electrical horse-power. It is seen that there is conduit capacity from both ends of the station capable of carrying the entire output of the station if necessary.

TRANSFORMER HOUSE.

The transformer house, which is located on the cliff southwest of the power-house, is constructed for a present capacity of 25,000 horse-power. The building is divided into three sections. The east bay contains all the 12,000-volt switches and bus bars, the central bay contains the step-up transformers only, and the west bay the high-tension switching apparatus. The transformers are of the oil-insulated type, water cooled. The water for cooling purposes will be supplied, normally, from the pumps located in the water-pumping chamber of the wheel pit. There is also installed a stand pipe, 116 feet high by 30 feet in diameter, carrying one day's supply of water to be drawn upon in case of an accident to this pumping system.

There are installed at present twelve 1,250-kilowatt step-up transformers, with a total capacity of 15,000 kilowatts. There are also four step-down transformers of 250-kilowatt capacity each, having a total capacity of 1,000 kilowatts. The former transformers have a voltage ratio of 12,000 to 24,000 or 36,000, or 41,500, or 62,600 volts. The 250-kilowatt step-down transformers have a ratio of 11,000 to 2,200 volts. The latter are used for supplying the local distributing service in Canada. There is space available for three more 1,250-kilowatt step-up transformers, making the total

capacity for transmission purposes at 24,000 volts, 25,000 horse-power. This 'step-up' transformer equipment is designed for supplying current to the Fort Erie-Buffalo transmission line at 24,000 volts pressure.

TRANSMISSION LINES.

There are now installed in Canada a 2,200-volt overhead line for local distribution, consisting of a pole line aggregating about 4 miles in length and containing two 3-phase circuits; eight underground cables for transmitting power into the United States by way of the upper steel-arch bridge, and one 24,000-volt 25,000 electrical horse-power transmission line to Buffalo, which line is now being built by way of Fort Erie, and will be ready for service about September 15.

This transmission line will consist of two lines of iron-anchored poles, 40 feet high, spaced 300 feet apart, and will carry two 3-phase aluminum circuits, each conductor of which is a 37-strand cable having a cross section of 500,000 circular mils. These lines are built on a private right of way, 30 feet wide, extending from the transformer house to the river front at Fort Erie. The ultimate capacity of this line is 50,000 horse-power, which will be carried on two pole lines on this 30-foot right of way, each line carrying two circuits, each circuit having a nominal capaity of 12,500 horse-power at 24,000 volts. The estimated loss in transmission is about 7 per ent. The line is 16 miles in length.

The poles consist of two 4-inch wrought-iron pipes joined together at the centre by a casting which has four struts, 90° apart, projecting radially. Truss rods secured at the top and bottom of the poles pass over the ends of these struts, and when tightened up stiffen the jointed pipe. The function of this central tubular member is to resist downward compression only. The horizontal stresses on the pole are resisted by four guy rods anchored in the ground with concrete guy stubs, one of these guys being in each quadrant around the pole. Under the central member of the pole is placed a heavy block of concrete which carries the iron step for the central pipe and takes the thrust.

The insulators are made of a compound known as 'electrose.'

At Fort Erie the line is tapped by a connection to a local substation for the supply of power to that municipality. The line then rises from the standard 40-foot elevation to a tower 80 feet high, erected about 1,200 feet from the Canadian shore line of the Niagara river. Thence the line rises again by a single span of 1,200 feet to a tower 210 feet in height on the river bank; thence by another single span of 2,300 feet the line passes to the Buffalo side of the river to another 210-foot tower. From there it drops down to a new 50,000-horse-power terminal house constructed for the distribution of this power in Buffalo. The tension is held the same at all conditions of wind and weather by means of strain insulators and heavy weights at both ends of the span.

OTTAWA, May 20, 1907.

A. GOBEIL, Esq.,
Deputy Minister of Public Works,
Ottawa, Ont.

DEAR SIR,—I beg to transmit to you herewith all reports issued by the International Waterways Commission, as well as the separate reports of the American and Canadian sections up to May 1, 1907.

Since the last annual report of the Canadian section has been filed with the Honourable the Minister of Public Works, the commission has dealt with the question of determining the boundary line on Lake Erie ; the question of the Chicago drainage canal, and the application of Mr. Smith L. Dawley, of Ogdensburg, N.Y., for permission to construct at Long Sault Island, in the township of Massena, St. Lawrence county, N.Y., dykes, retaining walls and such other structures as might be necessary to create an attractive summer resort with navigable approaches thereto and the development of a water-power.

The reports of the commission upon the Lake Erie matter and upon the Chicago drainage canal are published.

As to the application of Mr. Smith L. Dawley, the commission has disposed of it, at a meeting held in Toronto on January 4, 1907, by adopting the following resolution :—

'Whereas, Mr. Smith L. Dawley, of Ogdensburg, N.Y., submitted to the Honourable Secretary of War of the United States, under date of May 28, 1906, an application for permission to construct at Long Sault Island, in the township of Massena, St. Lawrence county, N.Y., dykes, retaining walls and such other structures as might be necessary to create an attractive summer resort with navigable approaches thereto, and the development of a water-power entirely in that portion of the St. Lawrence river that is within the United States, which application was referred to the International Waterways Commission by endorsement of the Secretary of War, dated June 2, 1906; and,

'Whereas, the application did not furnish information sufficient to justify a recommendation in the matter, and the efforts of the commission to obtain such information from Mr. Dawley have thus far been without success ;

'Whereas, the commission now learns that Mr. Dawley has transferred his rights at Long Sault Island to the Pittsburg Reduction Company, and it is the opinion of the commission that if any permit for the construction of works at this place is to be granted, it should be dealt with upon a direct application from the beneficiary ; therefore be it

'Resolved, That the International Waterways Commission recommend to the Honourable Secretary of War of the United States, that the application of Mr. Smith L. Dawley be denied.'

The commission is now engaged in investigating the proposed construction of controlling works at the outlet of Lake Erie. The subject has been referred to the hydraulic engineers of the commission, Messrs. Louis Coste and E. E. Haskell, and it is expected that a report will be submitted at an early date.

The commission has also under consideration an application from the Pittsburg Reduction Company, which asks authority to construct dams, canals, power stations and locks for the improvement of navigation and development of water-power at and near Long Sault Island, St. Lawrence county, N.Y. This application is not the same as the one made by Mr. Smith L. Dawley ; but it is admitted that all the chartered rights of Mr. Dawley have been transferred to or acquired by the Pittsburg Reduction

Company. The detailed plans of the undertaking have not as yet been submitted to the commission.

His Excellency the Governor General in Council has recently referred the following questions to the commission :—

1. The construction of a dam at the foot of Long Sault rapids in order to improve the navigation of the Rainy river ;

2. The application of the Grand Falls Power Company for permission to erect hydraulic works on the St. John river, N.B. ;

3. The matter of preventing damages caused to riparian owners by the overflowing of its banks by the Richelieu river.

These questions will be taken up by the commission at an early date.

Since the issue of the last annual report, which was presented to parliament in January last, the Canadian section has held several meetings in Toronto and in Ottawa.

Dr. W. F. King, who was one of the Canadian commissioners, resigned in March last, and was succeeded by Mr. W. J. Stewart, the Dominion Hydrographer, who took his seat on the commission, for the first time, at a meeting held in Buffalo on April 18.

I have the honour to be, sir,
Yours very truly,

THOMAS COTE,
Secretary, Canadian Section.

DOMINION OF CANADA

ANNUAL REPORT

OF THE

DEPARTMENT OF RAILWAYS AND CANALS

FOR THE FISCAL YEAR FROM JULY 1, 1905, TO JUNE 30, 1906

Submitted in accordance with the provisions of the Revised Statutes of Canada, Chapter 37, Section 28

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
PRINTED BY S. E. DAWSON, PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1906

[No. 20—1907.]

To His Excellency the Right Honourable Sir Albert Henry George, Earl Grey, Viscount Howick, Baron Grey of Howick, in the County of Northumberland, in the Peerage of the United Kingdom, and a Baronet; Knight Grand Cross of the Most Distinguished Order of Saint Michael and Saint George, &c., &c., Governor General of Canada.

May it Please Your Excellency,—

The undersigned has the honour to present to Your Excellency the Annual Report of the Department of Railways and Canals, of the Dominion of Canada, for the past fiscal year from July 1, 1905, to June 30, 1906.

All of which is respectfully submitted.

H. R. EMMERSON,
Minister of Railways and Canals.

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REPORT OF THE DEPUTY MINISTER.

To the Honourable H. R. Emmerson,
Minister of Railways and Canals.

Sir,—I have the honour to submit the annual report of the Department of Railways and Canals for the fiscal year ended June 30, 1906.

The annual reports of the engineers, together with general and special reports from superintendents, both of railways and canals, and from other officers in the department, are given in appendices.

In Part I. will be found statements showing the amounts expended during the past fiscal year in construction, repair and maintenance of the several works under the department; also statements showing total expenditure on each canal since its construction, and on each of the government railways; also a statement showing the payments made, year by year, to subsidized railways, with the aggregates of such payments.

GENERAL SUMMARY.

The expenditures of the department for the fiscal year 1905-6 on its works of construction, operation and maintenance, both railway and canal, and in furtherance, by subsidy under authority of parliament, of outside railway enterprises, are as follows:—

The total railway expenditure for the year amounts to $15,732,812.40; of which $6,102,565.74 was charged to capital, $7,893,653.49 to revenue, and $1,736,593.17 to income.

The expenditure on capital included $1,841,269.95 for the National Transcontinental Railway.

The expenditure on income included the sum of $1,637,574.37 paid as subsidies to railways other than the government roads, also $83,092.05 for the Board of Railway Commissioners for Canada.

The expenditure on the Intercolonial Railway, including the Windsor Branch, was $11,364,571.23, namely, on capital account $3,765,170.90, and on revenue account $7,599,400.33.

The expenditure on the Prince Edward Island Railway was $790,378.05, of which $496,124.89 was on capital and $294,253.16 on revenue account.

The expenditure on canals aggregates $2,758,022.32, of which $1,552,121.21 was chargeable to capital, $319,877.14 to income, $497,694.77 for staff, and $388,329.20 for repairs.

Adding to the above the further sum of $37,484.64 for miscellaneous expenditures common to both branches, the total departmental expenditure for railways and canals for the past fiscal year amounted to $18,528,319.36, a decrease compared with the previous year of $1,248,818.58.

The total revenue derived from the government works for the past fiscal year was $8,058,610.73, namely, from railways, $7,950,552.97, and from canals, $108,067.76, of which the sum of $107,717.32 was derived from hydraulic rents.

By Orders in Council of April 27 and May 19, 1903, tolls for passage through any of the government canals were abolished; the exemption, which was by way of experiment, to continue in force for the two seasons of navigation of 1903 and 1904, only. A further Order of February 25, 1905, continued the exemption for the season of 1905, and on June 22, 1905, the system of toll collection was definitely abandoned in respect of any and all the canals of the Dominion.

A sufficient staff has, however, been retained to carry on the essential work of recording the traffic through the canals—information which is requisite for the proper knowledge and appreciation of the commercial progress of the country—and for the collection of such other revenues as are derivable from the leasing of canal lands and water powers, &c.

The total expenditure on government railways prior to and since Confederation (July 1, 1867), up to July 1, 1906, amounts, on capital account, to $154,876,086.62, which includes the sum of $25,000,000 granted (from capital) to the Canadian Pacific Railway Company for its main line. In addition, there has been expended from the consolidated fund a total of $159,466,261.69, which includes $34,255,135.06, paid as subsidies to railways other than the Canadian Pacific Railway, making a total expenditure of $314,342,348.31. Of this amount the sum of $13,881,460.65 was expended on construction works prior to Confederation, on portions of what is now the Intercolonial Railway System.

The total revenue received from the government railways from July 1, 1867, to July 1, 1906, amounts to $112,571,053.19.

The government expenditure on canals prior to and since Confederation (July 1, 1867) to July 1, 1906, amounts on capital account, to $90,846,879.60, of which $20,593,866.13 was expended prior to Confederation, and from the consolidated fund to $23,548,402.07, making a total of $114,395,281.67.

The total revenue derived from canals during the same period is $13,513,583.32.

The total expenditure on railways and canals up to July 1, 1906, is, as above, $429,443,069.73, to which must be added for miscellaneous expenditures, embracing both, $705,439.75; making a grand total of $429,443,069.73.

The total revenue derived from railways and canals from July 1, 1867, to July 1, 1906, is $126,084,636.51.

Details of the above will be found in statements of the accountant of the department, Part I., pages 3 to 50, inclusive.

RAILWAYS.

The present report deals with those railways of the Dominion directly controlled by the Federal Government, and with others, towards the construction of which subsidies have been granted or authorized.

All Canadian railway companies, however, are required by statute to furnish statistical returns, annually, under oath, giving details as to the operation of their roads, and various items of information, financial and otherwise. These sworn returns are digested and summarized by the Comptroller of Railway Statistics, and this summary, for the year ended June 30, 1906, is printed as a separate report.

Following the course, however, adopted for some years past, there is here furnished a digest of the compilation so made ; supplying to the general public, in concise form, a general idea as to the position of railway matters in Canada

It is to be observed, with satisfaction, that, this year, the railway companies have, without exception, fulfilled their statutory obligations by sending in their returns in due time ; and the vexatious delays on their part in the matter, which, in previous years, have retarded compilation, have ceased to exist. Consequently, no list of delinquent companies has to be here recorded, as was the case in former reports.

STEAM RAILWAYS.

The number of steam railways in actual operation, including the two government roads, the Intercolonial and the Prince Edward Island Railways at the close of the fiscal year, June 30, 1906, was 198; some of these, however, are amalgamated or leased, making the total number of controlling companies 94, not including the government railways. The number of companies absorbed by amalgamation was 59, and the number of leased lines was 42.

On June 30, 1906, the number of miles of completed railway was 21,518, an increase of 917 miles, besides 4,085 miles of sidings. The number of miles laid with steel rails was 21,444, of which 878 miles was double track. The number of miles in operation was 21,353.*

The paid-up capital amounted to $1,332,498,705, an increase of $83,832,291.** The gross earnings of the year amounted to $125,322,865 an increase of $18,855,666, and the working expenses aggregated $87,129,434, an increase of $7,151,860, compared with those of the previous year; leaving the net earnings, $38,193,431, an increase of $11,703,806. The number of passengers carried was 27,989,782, an increase of 2,701,059, and the freight traffic amounted to 57,966,713 tons, an increase of 7,072,756 tons. The total number of miles run by trains was 72,723,482, an increase of 6,789,368.

The rolling stock comprised: For passenger service, 2,477 cars; for freight service, 91,276, including 61,929 box and cattle cars; and for operation and maintenance service 6,161, making a total of 99,914 cars. Of these, 86,442 were equipped with air-

NOTE.—* Of this mileage, the Canadian Pacific comprise 8,506·30 miles (5,169 owned and 3,337·30 leased), the Grand Trunk Railway 3,111·13 miles; the Intercolonial, 1,483·66 miles, including the Windsor Branch; the Canada Atlantic, 453 90 miles (395:60 miles owned, and 58·30 leased) and the Canadian Northern 2,482·20 miles (2,131·72 owned and 350·48 leased).

**The main items of this increase are the following: Canadian Northern, $15,671,804; Canadian Pacific, $17,877,753; Grand Trunk, $5,840, 638; Intercolonial, $3,764.456.

brakes, and 91,182 were fitted with automatic couplers, an increase of 5,801 over the previous year. The locomotives numbered 2,931.

The accident returns show a total of 361 persons killed. 16 being passengers, 139 employees and 242 others. and, in addition, 1,365 injured. of whom 235 were passengers, 890 employees and 242 others. By train collisions and derailments, 1 passenger, 35 employees and 2 others were killed, and 102 passengers, 95 employees and 12 others were injured. Through jumping on or off trains or engines in motion, 5 passengers, 8 employees and 20 others were killed, and 49 passengers, 70 employees and 40 others were injured. Through walking, lying or being on the track 5 passengers, 38 employees and 125 others were killed, and 2 passengers, 43 employees and 65 others were injured. Through falling from cars or engines, 4 passengers, 12 employees and 3 others were killed, and 20 passengers, 163 employees and 22 others were injured. Through being struck by engines or cars at highway crossings, 1 passenger, 2 employees and 47 others were killed, and 2 employees and 74 others were injured. In the work of coupling cars, 10 employees were killed, and 128 employees were injured, a total of 138, as against 130, 178, 211, 241 and 290 in the five preceding years, respectively ; a very satisfactory testimony to the efficiency and value of the automatic car coupler, now happily growing into general use.

By the Railway Act, 1903, section 211 (*c*) railway companies are required to provide and use on their engines and cars 'couplers which couple automatically, by impact, and which can be uncoupled without the necessity of men going in between the ends of the cars.'

Electric Railways (including Street Railways and Tramways).

At the close of the fiscal year ended June 30, 1906, there were 814 miles completed, of which 811 miles were laid with steel rails, 195 miles being double-tracked. The paid up capital amounted to $63,857,970, of which the municipal aid amounted to $173,000 (including $100,000 subscription to shares, and $40,000 loan). The number of miles in operation was 814, the actual increase being 21 miles. The gross earnings aggregated $10,966,872, an increase of $1,609,747, and the working expenses $6,675,038, an increase of $756,844, leaving the net earnings, $4,291,834, an increase of $852,903. The number of passengers carried was 237,655,074,* an increase of 34,187,757, and the freight carried amounted to 506,024 tons, a decrease of 4,326 tons. The car mileage was 59,618,836, an increase of 4,659,735 miles. The accident returns show a total of 47 persons killed during the year, 12 being passengers, 3 employees and 32 others. In addition, 1,653 persons were injured, of these 1,088 were passengers, 125 employees and 440 others; 1 employee and 1 other were killed, and 85 passengers, 13 employees and 8 others injured in collisions derailments; 3 passengers and 2 employees were killed, and 844 passengers, 17 employees and 11 others injured, through jumping on or off cars in motion; 2 passengers and 13 others were killed, and 2 passengers and 128 others injured through walking or being on the track; 1 passenger was killed, and 72 passengers,

* The city street railways and their extensions carried passengers as follows:—Montreal (3 companies), 77,048,867; Toronto (3 companies), 74,960,886; Ottawa, 10,741,808; Quebec, 6,049,097; Hamilton (4 companies), 8,520,213; Winnipeg, 14,155,360; London, 5,294,553; Halifax, 3,403,747; St. John, 2,688,989; Vancouver, Victoria and New Westminster (operated and returns made by one company), 12,395,582

16 employees, and 2 others injured, through falling from cars; 4 passengers, and 19 others were killed, and 16 passengers, 8 employees, and 225 others injured by being struck by cars at highway crossings. 7 employees were injured by coupling cars. Power was supplied in 15 cases by water, and in 41 cases by steam. Ontario has 441 miles, Quebec 198, New Brunswick 16, Nova Scotia 54, Manitoba 32, and British Columbia 72 miles. Returns were received from 47 companies.

All Railways, Steam and Electric.

At the close of the fiscal year ended June 30, 1906, the conjoined statistics of steam and electric roads (including street railways) show the following results:— There were 22,332 miles of railway completed, 22,167 miles being in operation. The paid up capital amounted to $1,396,356,675. The gross earnings were $136,289,737, and the total working expenses $93,804,472, making the net earnings $42,485,265; 265,644,856 passengers, and 58,472,737 tons of freight were carried; 28 passengers were killed.

The following indicates the railway growth in Canada from year to year, since the opening of the first line in 1836:—

Year.	Miles in operation.	Year.	Miles in operation.
1835	0	1871	2,695
1836	16	1872	2,899
1837	16	1873	3,832
1838	16	1874	4,331
1839	16	1875	4,804
1840	16	1876	5,218
1841	16	1877	5,782
1842	16	1878	6,226
1843	16	1879	6,858
1844	16	1880	7,194
1845	16	1881	7,331
1846	16	1882	8,697
1847	54	1883	9,577
1848	54	1884	10,273
1849	54	1885	10,773
1850	66	1886	11,793
1851	159	1887	12,184
1852	205	1888	12,585
1853	506	1889	12,585
1854	764	1890	13,151
1855	877	1891	13,838
1856	1,414	1892	14,564
1857	1,444	1893	15,005
1858	1,863	1894	15,627
1859	1,994	1895	15,977
1860	2,065	1896	16,270
1861	2,146	1897	16,550
1862	2,189	1898	16,870
1863	2,189	1899	17,250
1864	2,189	1900	17,657
1865	2,240	1901	18,140
1866	2,278	1902	18,714
1867	2,278	1903	18,988
1868	2,278	1904	19,431
1869	2,524	1905	20,487
1870	2,617	1906	21,353

To the above is to be added the following, in respect of electric railways from the year 1901, the first year of publication of returns:—

Year 1901	.553	miles	in operation.
" 1902	.558	"	"
" 1903	.759	"	"
" 1904	.767	"	"
" 1905	.793	"	"
" 1906	.814	"	"

GOVERNMENT RAILWAYS IN OPERATION.

The government railways are the Intercolonial, the Windsor Branch (maintained only) and the Prince Edward Island Railways.

Details respecting these railways and their operation will be found in the appendices, Part II., containing reports from the Chief Engineer of the Department, the General Manager of Government Railways and the officials of these roads.

The gross earnings of the government roads for the past fiscal year, 1905-6, ended on the 30th of June, 1906, amounted to $7,950,552.97, and, compared with the preceding year, show an increase of $899,660.86. The gross working expenses amounted to $7,893,653.49, a decrease, compared with the previous year, of $1,012,600.86.

The operations of the year resulted in a net gain of $56,899.48, against a net loss in the preceding year of $1,855,262.24.

The Intercolonial produced a profit of $61,915.54, the Windsor Branch a profit of $31,966.53, and the Prince Edward Island Railway a loss of $36,982.59.

It should be noted that in the statements of the accountant, the figures relating to the Windsor Branch of the Intercolonial are included in those of that railway.

INTERCOLONIAL RAILWAY.

On March 1, 1898, the operations of the Intercolonial were extended to Montreal by means of leases obtained from the Grand Trunk and Drummond County Railway companies, making an addition of 169·81 miles to the operation of the government line.

The leasing agreement with the Grand Trunk Railway Company, dated February 1, 1898, was confirmed by the Act 62-63 Vic., chap. 5 (1899). Its term extends for a period of ninety-nine years from March 1, 1898; the annual rental being fixed at $140,000.

Under authority of the Act 62-63 Vic., chap. 6 (1899), the Drummond County Railway from Chaudiere to Ste. Rosalie, together with the branch from St. Leonard to Nicolet, was acquired by the Dominion; conveyance being made by a deed dated November 7, 1899.

On June 30, 1904, the total mileage of the railway and its branches was 1,320·92 miles, the addition being due to the completion of the Riviere Ouelle Branch.

During the fiscal year 1904-05, that length was increased by the purchase, on October 1, 1904, of the Canada Eastern Railway from Gibson to Loggieville, 123·67 miles, and by the surrender, on April 19, 1905, of the Fredericton and St. Mary's bridge, and connected property, 1·33 mile. The total mileage of the Intercolonial Railway system in operation on June 30, 1905, was 1,445·92 miles. No change has been made during the fiscal year 1905-6.

CAPITAL ACCOUNT.

During the past fiscal year there was an addition of $3,765,170.90 to the capital account, making the total expenditure chargeable to capital on the whole road as amalgamated under the Acts 54-55 Vic., chap. 50, (1891) and 62-63 Vic., chaps. 5 and 6 (1899), together with the acquired Canada Eastern Railway, up to July 1, 1906, $81,238,728.63.

The additions during the year included (omitting cents) the following more important items: for rolling stock, $1,291,234; steel rails and fastenings, $379,956; additional sidings and spurs, $120,127; Fredericton and St. Mary's Bridge, $300,000; increased accommodation at Halifax, $304,371; at Moncton, $88,187; at Truro, $99,743; at Pictou, $100,531; at St. John, $75,784; at Sydney, $54,432; for the extension to Sydney Mines, $42,402; for strengthening bridges, $244,582; and for double-tracking parts of the line, $206,948. Other improvements have been made on various parts of the line, on capital account, increasing its facilities for handling traffic, and rendering operation easier and safer; these include the application of air-brakes to a further number of freight cars, and the substitution of M.C.B. couplers for the old draw-bar on such cars. The reports of the General Manager, the Chief Engineer and other officers of the railway will be found in the appendices hereto, Part II., giving copious details in the matter.

REVENUE ACCOUNT.

The gross earnings of the year amounted to $7,643, 829.90, an increase, compared with the preceding year, of $860,307.07, and the working expenses to $7,581,914.36, a decrease of $926,912.39, leaving a surplus of $61,915.54.

The several classes of expenditure were to the following amounts (omitting cents): for locomotive power, including salaries, wages, fuel, repairs, &c., $2,930,075, a decrease, compared with the previous year of $286,578; car expenses, $1,617,119, a decrease of $423,014; maintenance of way and works, $1,397,143, a decrease of $325,473; station expenses, $1,032,764, an increase of $95,948; for 'general charges,' which include staff and agents' salaries, damages paid, ferry service, printing and advertising, and agency expenses, $586,267, an increase of $50,726.

Comparing the earnings with those of the previous year, the passenger traffic produced 30·06 per cent of the gross earnings, and amounted to $2,297,716.52, an increase over those of the preceding year of $192,649.77, the freight traffic 65·67 per cent, amounting to $5,019,805.53, an increase of $646,626.98, and the carriage of mails and express matter 4·27 per cent, amounting to $326,307.85, an increase of $21,030.32.

Based on a total mileage of 1,445·92 (against 1,414·67 miles the previous year) the earnings per mile amounted to $5,286.48, an increase of $491.35 per mile compared

with the previous year. The earnings per train mile amounted to 1·029 cents against 0·929 cents the previous year. The earnings per engine mile amounted to 82·15 cents against 72·08 in the previous year.

The working expenses per mile of railway were $5,243.66, a decrease of $771.04; the expenses per train mile were 102·12 cents, a decrease of 14·49 cents, and per engine mile 81·48 cents, a decrease of 8·94 cents. These figures include the rental for the extension into Montreal.

The engine mileage was 9,304,511, a decrease of 105,782 miles; the train mileage was 7,424,831, an increase of 128,086 miles, and the car mileage 93,746,123, an increase of 5,490,846 miles, compared with the previous year.

GENERAL OBSERVATIONS.

The following details, showing the principal items of the traffic of the railway during the past fiscal year in comparison with that of the previous year, will be found of interest.

The number of passengers carried was 2,737,160, a decrease of 73,800. The number of local passengers decreased to the extent of 98,456, but there was an increase of 24,656 in the number of through passengers. The freight traffic aggregated 3,156,189 tons, an increase of 373,932. The local freight increased by 294,335 tons, and the through freight by 79,597 tons.

The following shows the principal goods carried and their quantities, and also a comparison with the quantities carried in the previous year.

Of flour and meal 1,882,630 barrels, an increase of 113,150; of grain, 2,924,226 bushels, a decrease of 393,684; of lumber, 572,878,600 superficial feet, an increase of 54,444,290; of live stock, 106,589 head, a decrease of 4,081; of coal, 620,272 tons, an increase of 17,895; of manufactured goods 866,955 tons, an increase of 234,932; of firewood, 47,106 cords, a decrease of 11,294; of goods other than the above, 510,080 tons, an increase of 5,089 tons.

The satisfactory showing indicated by the above statements, has, unfortunately, been marred by a most disastrous fire that occurred on the 24th of February, 1906, in the workshops at Moncton, completely destroying a number of the principal buildings and their contents, together with a quantity of rolling stock, and causing considerable damage otherwise. Immediate steps were taken to meet the emergency by temporary provisions, the entire cost of which was defrayed from revenue, and to rebuild, on a more extensive and suitable site. For this purpose an area of 287⅓ acres has been purchased and the new buildings are in course of construction.

The winter was a comparatively mild one, and but little delay was experienced from snow-storms. The direct cost of snow and ice removal was $55,380.62. The value of the stores in hand at the close of the year, including fuel and steel rails and fastenings, was $1,493,723.83.

Details of works executed, and financial and other statements from the officers of the road will be found in the appendices, Part II.

It is desirable that I indicate more fully than in my general summary, above given, some of the features of the improved financial position of the Intercolonial

in its last years' operation, which have resulted not only in an increase of $860,307.07 in the traffic returns, but in a reduction of expenditure to the amount of $926,912.39, making a total betterment of no less than $1,787,219.46 in the road's financial standing as compared with the previous year, while, at the same time, it cannot be too strongly asserted that the reductions so carried out have involved no degradation of the standard of the railway, which, on the contrary, has never been higher than during the year past, both from the structural, maintenance, and operation points of view; nor has the standard of wages been lowered.

In locomotive power there was a reduction, omitting cents, of $186,577; in car expenses, comprising train expenses and ordinary repairs, $423,013; and in maintenance of way and works $325,473. In these figures, omitting cents, on the item of coal there was a reduction of $80,515, while oil waste and small stores cost $9,259 less. The following were the reductions in the cost of repairs, omitting cents:— To engines, tenders, and engine tools, $116,506; to passenger cars $57,612, and to freight cars, $319,908. In the repairs of roadway a reduction of $146,275 was effected; further, as the result of the improved engine service, which, as below mentioned amounts to an increase of 15·9 tons per engine mile, the cost of wages in that connection has been correspondingly lessened; the reduction so caused amounting to $72,587.

Analysing further the engine and car mileage, I may state that the total engine mileage for 1905-6, 9,304,511 miles, a reduction, compared with the previous year, of 105,782, comprised freight train miles 4,730,595, an increase of 326,570; passenger 2,694-236, a decrease of 198,484, and shunting and light engines 1,879,680, a decrease of 223,868. The total car mileage, 93,746,123 miles—an increase of 5,490,846—comprised freight cars, 78,399,746 miles, an increase of 5,659,825, and passenger cars, 15,346,377 miles, a decrease of 168,979. The total ton miles amounted to 851,-211,445, an increase, compared with the previous year, of 140,161,712. This is equivalent to 91·5 tons per engine mile, as against 75·6 in the preceding year, an increase of 15·9 tons.

It is only proper to observe, in the comparison of the Intercolonial expenditures of last year with those of the previous year, that the year 1904-5 was marked by the exceptionally heavy cost entailed by the unprecedented severity of the winter season, a cost which is set down in the railway official statement at $264,716; whereas the winter of 1905-6 was of such mildness that the cost is placed at only $55,380. Again, in 1904-5 the assistance rendered to the eastern portions of Nova Scotia and Prince Edward Island by the free transport of hay entailed, as stated in my last report, a cost which I estimated at $140,000. This, of course, has no parallel in the year now closed, nor in any preceding year.

A very important measure has been adopted in connection with the account system of the Intercolonial, which will have far-reaching and satisfactory effect in the future handling of this important branch. The system has now been brought into conformity with that in force on the leading Canadian railways and on the railways of the United States as laid down by the Inter-State Commerce Commission, and, as a result of such conformity, the vexatious and troublesome discrepancies that have heretofore embarrassed the road in its dealings with other roads will disappear, and

harmonious working out of the various complicated questions constantly arising between them will be attained.

As an important feature of the new system, there will be gathered, compiled, and recorded, itemized information as to all expenses and cost of the railway operation, and the several operating officers in charge of the various branches of management will from time to time, be kept fully apprised of the cost of the works or operations incidental to their own particular charge, and, with the data thus afforded them, be enabled to keep absolute check of such expenditures, and to control any tendency to waste. General statements will be, from time to time, furnished to the General Manager and to the department, embodying the expenditures, in detail. The existence of such a check cannot but have a very beneficial effect on the management of the road, from the financial point of view.

WINDSOR BRANCH.

The road is 32 miles in length. It extends from Windsor Junction, on the Intercolonial Railway, to Windsor.

The railway is operated by the Dominion Atlantic Railway Company, formerly the Windsor and Annapolis Railway Company. The company pay all charges in connection with the working of the traffic, two-thirds of the gross earnings being allowed them, the government taking the remaining one-third, and assuming all costs of maintenance of the road and works. This arrangement is carried out under an agreement dated December 13, 1892, which extends, for a further term of 21 years, arrangements similar to those made in 1871.

All charges for superintendence and supervision of maintenance of works are borne by the government; the duty of supervision is performed by the chief officers of the Intercolonial Railway.

The gross earnings of the government (one-third of the gross receipts) amounted to $49,452.50, a decrease of $586.17. The expenses of maintenance amounted to $17,485.97, a decrease of $9,377.19, leaving the net profit to the government $31,966.53.

All necessary repairs and renewals have been carried out, and the road has been maintained in good condition. A new passenger station, with an addition to the freight house were built at Windsor.

PRINCE EDWARD ISLAND RAILWAY.

The mileage of the railway was increased by the opening of the branch from Charlottetown to Murray Harbour, including the Vernon River Branch between Lake Verde and Vernon, in all 52·3 miles, making the total length of this railway system 261·3 miles.

CAPITAL ACCOUNT.

The total cost of the road and its equipment chargeable to capital account at the close of the past fiscal year was $7,215,588.69, there having been an addition during the year of $496,124.89.

The chief items of this expenditure were in connection with the works on the Murray Harbour branch, namely, $118,295.17, and a further sum of $75,733.99 on the Hillsborough bridge at Charlottetown, which is a part of this branch. A total of $113,325.31 was expended on the branch line from Cardigan to Montague Bridge and $27,208.37 on the branch line to Vernon River bridge. Other items of improvement were for increased accommodation at Charlottetown, $63,379.17. At various points on the railway the accommodation was improved, amongst others, at Georgetown at a cost of $19,996.99. The sum of $19,987.89 was expended in applying Westinghouse air-brakes and air signals to cars, and $10,994.47 on applying the M.C.B. couplers to rolling stock.

REVENUE ACCOUNT.

The gross earnings amounted to $257,270.57, an increase of $39,939.96, compared with the previous year, and the working expenses to $294,253.16, a decrease of $76,121.28. The expenditure was in excess of the earnings to the extent of $36,982.59.

The number of passengers carried was 256,092, an increase of 20,898, producing $114,053.82, an increase of $11,548.27. Of freight 87,162 tons were carried, an increase of 13,193 tons, producing $121,621.58, an increase of $26,896.88. The earnings from mails and sundries amounted to $21,595.17, an increase of $1,494.81.

The engine mileage was 431,678 miles, a decrease of 10,815 miles; the train mileage was 313,501 miles, a decrease of 29,800 miles.

The working expenses per train mile were 93·86 cents, a decrease of 14·05 cents, and per mile of railway $1,205.95, a decrease of $566.60 per mile.

The receipts per mile of railway amounted to $1,054.39, an increase of $14.53 per mile.

The percentages of gross receipts were as follows:— Passenger earnings 44·34 per cent, a decrease of 2·83 per cent; freight 47·27 per cent, an increase of 3·69 per cent, and other items 8·39 per cent, a decrease of 0·86 per cent.

The value of stores on hand at the close of the fiscal year, including fuel and steel rails, was $73,044.87.

The destruction by fire on the 30th November, 1905, of the carpenter and blacksmith shop at Charlottetown entailed considerable expenditure.

Details will be found in the appendices, Part II.

The following represents the condition of the 27 locomotives, which constitute the locomotive power on the Prince Edward Island Railway:—

Three were built in 1873, and are of no further use, being worn out; 4 were built in 1876, and are of no use; 4 were purchased in 1882, and are in good order, but being too light for the main line, they can only be used as shunters; 2 were purchased in 1884, and are in good order, but can be employed only for light specials; 2, one purchased in 1873 and the other built in 1866, have been discarded, as of no further use; 2 were purchased in 1899; 2 in 1900; 2 in 1902; 4 in 1904; 1 in 1905, all of which are in good order; 1 purchased in 1887 has been repaired and is now in good order.

The position, accordingly, seems to be that 9 of these engines are of no further use, 4 are in fair condition for use as shunters, and 14 are in good condition.

It seems proper to remark that the population of Prince Edward Island, according to the last census of 1901, is under 104,000, and that this population is mainly agricultural. To meet the expenses of the railway, with the engine mileage above shown—equivalent to about 4 engine miles per head of population—about $3 per head, or, say, $15 per family, would be required, an amount which, under the existing conditions, it would be difficult to obtain.

BOARD OF RAILWAY COMMISSIONERS FOR CANADA.

By the Act 3 Ed. VII., chap. 58 (1903) amending and consolidating the law respecting railways, the Railway Committee of the Privy Council was abolished and in lieu thereof a Board of Commissioners, under the above title, was created, to consist of three members to be appointed by the Governor in Council; this Act was brought into force on February 1, 1904, by proclamation, on the authority of an Order in Council dated January 18, 1904, which also appointed certain persons as commissioners. The office of the board is at Ottawa, though it is authorized to hold sessions in any part of Canada. Its decisions and orders are final, subject to appeal to the Supreme Court upon questions of jurisdiction or law, and also to action thereon by the Governor in Council, in his discretion.

SURVEY FOR A RAILWAY TO GIVE ACCESS TO THE YUKON DISTRICT.

In the annual report of the fiscal year 1900-01, will be found a full report from the engineer in charge on this subject and also (on p. xv.) a summary of the work done and the conclusions arrived at. Previous reports were printed in the annual reports for the years 1898-99 and 1899-1900.

NATIONAL TRANSCONTINENTAL RAILWAY.

Under an agreement, dated July 29, 1903, ratified by the Dominion Act of that year, chap. 71, and under a modifying agreement dated February 18, 1904, ratified by the Act of that year, chap. 24, the Grand Trunk Pacific Railway Company, a company incorporated by the Act of 1903, chap. 122, have agreed with His Majesty in respect of the construction of a line of railway, wholly upon Canadian territory, between the city of Moncton, in the province of New Brunswick, and the navigable waters of the Pacific ocean, at or near Port Simpson or some other port in British Columbia, as may be agreed upon. The railway is to be composed of two divisions, namely, the eastern division, between Moncton and Quebec, thence westerly through the northern part of the provinces of Quebec and Ontario, and through the province of Manitoba to the city of Winnipeg, and the western division, between Winnipeg, or some point on the said eastern division, and the Pacific ocean. The eastern division is to be constructed by the government under four commissioners to be appointed by the Governor in Council, and thereafter leased to and maintained and operated by the company, who undertake to construct at their own cost and to maintain and operate the western division. The lease of the eastern division is to be for a period of 50 years, at a rental of three per cent per annum upon the cost of its construction; the

first seven years of the term to be free of rent; both divisions are to be equipped by the company, the first equipment to be of a value not less than $20,000,000.

By way of assistance to the company in the construction of the western division, it is provided that the government shall guarantee payment of the principal and interest of an issue of bonds to be made by the company for an amount sufficient to produce a sum equal to 75 per cent of the cost of its construction, such amount not to exceed $13,000 per mile in respect of the prairie section from Winnipeg to the eastern limit of the Rocky mountains (such limit to be established by the Chief Engineer of the company and the Chief Engineer of the government, as the result of actual surveys to be made).

The several expenditures to be made under these Acts and agreements are to be so made from appropriations by Parliament for the purpose, and on the recommendation of the Minister of Railways and Canals, to whom accounts of all receipts, expenditures and liabilities are to be furnished monthly. The board are to furnish annually a report to the Governor in Council, through the Minister of Railways and Canals, showing the receipts and expenditures of the year, and other information as to the railway, which report is to be submitted to Parliament.

The Board of Commissioners was duly appointed by Order in Council, together with the necessary officers, and is established with its headquarters in the city of Ottawa.

The report of the board for the fiscal year ended on June 30, 1906, has been received, and will be laid before Parliament in due course.

It may, however, be desirable to briefly summarize here the results of operations carried on.

The total expenditure by the board amounted for the fiscal year to $1,479,071.77, added to which there was paid from the Finance Department, but chargeable against the railway, the sum of $352,191.73 for the purchase of the Grand Trunk Pacific surveys, stores, &c., within the zone of the surveys conducted by the board, and further amounts paid by this department aggregating $10,006.45, making the total expenditure on the railway for the fiscal year $1,841,269.95.

The previous expenditure amounted to $784,740.68, making the total expenditure up to June 30, 1906, $2,626,010.63.

From the report of the Board it appears that the various surveys carried on have produced satisfactory results, and that the basal intention that the railway, throughout, should be so located as to afford grades of exceptional ease in operation not exceeding 0·40 per 100 against east bound and 0·60 per 100 against west bound traffic and curves of the greatest possible radius has been closely regarded, though the endeavour to meet this requirement has, of course, entailed much additional survey work.

Connected lines of survey have now been obtained for the entire distance between Moncton and Winnipeg.

During the past year, 9,156 miles of survey were made, including exploratory, preliminary, first location, revised location, and final location. Of first location there

were 1,734 miles ; of revised location, there were 618 miles, and of the final 358 miles.

At the close of the fiscal year, construction was in progress, under contract, on 150 miles from the Quebec bridge westerly, and also on 244 miles from a point a few miles east of Winnipeg to the approximate point of junction of the Thunder Bay Branch of the Grand Trunk Pacific near Peninsular Crossing, longitude 92°. The Cap Rouge viaduct, a short distance west of the Quebec bridge, was under contract.

On the Western Division of the railway, to be built by the Grand Trunk Pacific Railway Company, the report of the Government Chief Engineer shows the position to be as follows, up to the 1st of September, 1906. Plans and profiles of the located line have been approved by Order in Council for a total distance of about 720 miles, covering the distance from Portage la Prairie to a point about 8 miles east of Edmonton, and the works are in progress on this section, though the scarcity of labour has affected their advancement. The location in the prairie country has been so selected as to carry the road through a fine farming district, and to give a line of railway with easy curvature and with such gradients that no grade will exceed 0·40 per 100 against the traffic moving east and 0·50 per 100 against the west bound traffic. This will, of course, involve much work of heavy character, but the results to be thereby attained will have a most important bearing on the successful and economical operation of the railway. This report of the Chief Engineer will be found in the appendices.

RAILWAY SUBSIDIES.

The following pages show, in alphabetical sequence, the position of those companies whose dealings with the government in respect of subsidies are not yet closed. Reports of previous years give information as to companies whose subsidies have been fully earned and paid prior to July 1, 1905.

A tabulated statement of payments will be found in Part I., and a list of subsidy agreements entered into during the fiscal year in Part IV.

The several subsidy Acts passed in each year from 1882 will be found in Part III. No subsidies were authorized in the session of 1895, 1896, 1898, 1902 and 1905.

Information has been brought down to the end of the fiscal year 1905-06.

SUBSIDY CONTRACTS ENTERED INTO DURING 1905-06, TO JUNE 30, 1906.

Canadian Pacific Railway Company.—From St. Philippe d'Argenteuil Station, &c., northerly, 3 miles; contract dated March 20, 1906.

Central Ontario Railway Company.—From a point near Bancroft to a point near Whitney, 40 miles; contract dated September 6, 1905.

Chateauguay and Northern Railway Company.—From a point in Hochelaga Ward, Montreal, to a point on Great Northern Railway in or near Joliette, &c., 42 miles; contract dated June 26, 1906.

Kettle River Valley Railway Company.—From Grand Forks to a point 50 miles up Kettle River, 50 miles; contract dated July 28, 1905.

Klondike Mines Railway Company.—From Dawson to Stewart River, 84 miles; contract dated May 25, 1906.

Kootenay Central Railway Company.—From Golden to International boundary line, via Windermere and Fort Steele, &c., through Crow's Nest Pass at or near Elko, 186 miles; contract dated June 23, 1906.

Mabou and Gulf Railway Company, Limited.—From Mabou Coal Mines to a point near Glendyer, thence to Orangedale on Intercolonial Railway, 34 miles; contract dated July 5, 1905.

Midway and Vernon Railway Company.—From Midway to Vernon, 150 miles; contract dated July 28, 1905.

SUBSIDIES PAID DURING THE FISCAL YEAR ENDED JUNE 30, 1906.

Canadian Pacific Railway (Kootenay and Arrowhead Branch	$ 89,073 00
Chateauguay and Northern Railway	116,000 00
Halifax and South-Western Railway	176,512 00
James Bay Railway	651,264 00
La Compagnie du chemin de fer de Colonization du Nord	75,376 00
Middleton and Victoria Beach Railway	50,303 80
Nicola, Kamloops and Simalkameen Railway Coal and Railway Company	110,592 00
Orford Mountain Railway	45,764 50
Quebec and Lake St. John Railway	86,016 00
Restigouche and Western Railway (now International Railway Company of New Brunswick)	50,070 07
	$1,450,974 37

GOVERNMENT ACTION AS TO SUBSIDIZED RAILWAYS.

(The numbers within brackets after the title of the company refer to the lists of railways for which subsidies have been authorized by Parliament year by year, from the commencement of the system of railway subsidy in 1882, in the appendices hereto.)

With regard to the several lines of railway subsidized by the Dominion, the following represents the action taken and the progress made, in so far as the Dominion government is concerned; only those lines and companies being mentioned as to which definite steps, other than merely preliminary, have been taken towards securing the subsidy.

The following shows the aggregate of the payments made on subsidy accounts:—

For the fiscal year	1883-84,	ended on June 30,	1884	$ 208,000 00
"	1884-85	"	1885	403,245 00
"	1885-86	"	1886	2,171,249 00
"	1886-87	"	1887	1,406,533 00
"	1887-88	"	1888	1,027,041 92
"	1888-89	"	1889	846,721 83
"	1889-90	"	1890	1,678,195 72*
"	1890-91	"	1891	1,265,705 87*
"	1891-92	"	1892	1,248,215 93*
"	1892-93	"	1893	811,394 07*
"	1893-94	"	1894	1,229,885 10*
"	1894-95	"	1895	1,310,549 10*
"	1895-96	"	1896	834,745 49*
"	1896-97	"	1897	416,955 30*
"	1897-98	"	1898	1,414,934 78*
"	1898-99	"	1899	3,201,220 05*
"	1899-1900	"	1900	725,720 35*
"	1900-01	"	1901	2,512,328 86*
"	1901-02	"	1902	2,093,939 00*
"	1902-03	"	1903	1,463,222 34*
"	1903-04	"	1904	2,046,878 45*
"	1904-05	"	1905	1,275,629 53*
"	1905-06	"	1906	1,637,574 37*
				$31,229,885 06

To the above there have to be added the following exceptional subsidies:—

The Canada Central Railway, paid between 1878-83..	$ 1,525,250 00
The Canadian Pacific Railway extension from St. Martin's Junction to Quebec, paid in 1885.. ..	1,500,000 00
Total subsidies paid from 'Consolidated Fund' up to June 30, 1906..	$ 34,255,135 06
The main line subsidy to the Canadian Pacific Railway was paid from 'Capital,' amounting to.. ..	25,000,000 00
Total paid as subsidies..	$ 59,255,135 06

The above does not include the amount $2,394,000, due to the province of Quebec for the railway between Ottawa and Quebec, which amount has been transferred to the public debt, and on which interest at 5 per cent is paid, amounting to $119,700 a year. (See note on page 49 of the accountant's statement, Part I.)

NOTE.—The names, locations and mileage of the several railways of the Dominion, together with those of the branch lines composing their systems will be found in the 'Railway Statistics,' now issued as a separate report.

* In these amounts the subsidy of $186.60 a year payable to the Atlantic and North-west Railway Company, for 20 years from July 1, 1889, is included. Payment is made by the Finance Department.

ALBERTA SOUTHERN RAILWAY COMPANY.

(See Annual Report of 1891-92.)

ALGOMA CENTRAL AND HUDSON BAY RAILWAY COMPANY.

(See Nos. 437 and 479.)

This company was incorporated as 'The Algoma Central Railway Company' by the Act 62-63 Vic., chap. 50 (1899), with powers to construct a line of railway from the town of Sault Ste. Marie to a point on the Canadian Pacific Railway at or near Dalton Station, and thence south-westerly to Michipicoten Harbour, Lake Superior.

These powers were amended by the Act 63-64 Vic., chap. 49 (1900), and the company were empowered to build a railway from Sault Ste. Marie to a point between the rivers Magpie and Michipicoten, and thence to the main line of the Canadian Pacific Railway, and southerly to Michipicoten Harbour.

By the Act 1, Ed. VII., chap. 46 (1901), the name of the company was changed as above, and they were empowered to build an extension of their railway from a point on the Canadian Pacific Railway northerly to some point on James Bay, not further north than Equam river.

By the Railway Subsidy Act of 1899, 62-63 Vic., chap. 7, item 23, the grant of a subsidy of $3,200 a mile, with a further subsidy of 50 per cent on expenditure in excess of $15,000 a mile, the whole subsidy not to exceed $6,400 a mile, was authorized for 40 miles of a railway from Sault Ste. Marie towards Michipicoten river and harbour, and towards the Canadian Pacific Railway.

The company having applied for this subsidy, a contract was entered into with them, accordingly, on September 28, 1901, under authority of orders in council dated May 30 and August 10, 1901.

By the Railway Subsidy Act of 1900, 63-64 Vic., chap. 8, item 4, the grant of a similar subsidy to the company was authorized for an extension of 25 miles from the end of the 40 miles section above mentioned, and also for 25 miles from Michipicoten harbour towards the main line of the Canadian Pacific Railway.

Under authority of an order in council, dated January 6, 1902, a contract was entered into with the company on February 5, 1902, for the work so subsidized.

By the Railway Subsidy Act of 1901, chap. 7, item 20, the grant of a similar subsidy was authorized for a further distance, not exceeding 135 miles, to a point on the Canadian Pacific Railway at or near White river, and a contract was entered into with the company accordingly on October 15, 1902.

Payments of subsidy to the extent of $924,976 had been made up to June 30, 1905.

No further payments have been made up to June 30, 1906.

ATLANTIC AND LAKE SUPERIOR RAILWAY COMPANY.

(See No. 524.)

This company was incorporated by the Act 56 Vic., chap. 39 (1893), with powers to construct or acquire a line of railway from a point at or near Gaspé bay, in the province of Quebec, to a point at or near the St. Mary river, in the district of Algoma,

in the province of Ontario, and was authorized to enter into agreement with certain companies named for the purchase or lease of their railways, in whole or in part, and their franchises, between the points named.

Agreements were made by the company, and were confirmed by Parliament by the Act 57-58 Vic., chap. 63 (1894), as follows :—

(1) For the purchase of the Baie des Chaleurs Railway Company's railway and appurtenances and their franchises. (2) For the use of a bridge to be constructed across the River St. Lawrence, opposite the city of Montreal, to be built by the Montreal Bridge Company. (3) For the purchase of the Great Eastern Railway between Yamaska and St. Gregoire, in the province of Quebec. (4) For the purchase from the Ottawa Valley Railway Company of their railway between Lachute and St. Andrew's, in the province of Quebec, and their franchises. The Act provided that the railways named should be completed within three years, and the bridge within five years.

Difficulties, however, arose; the property of the Atlantic and Lake Superior Railway Company was ultimately vested in the trustees of the bondholders, who, by the Act 1, Ed. VII., chap. 48, 1901, were authorized, notwithstanding anything contained in any Act of Parliament, to repair and renew the road-bed and bridges of the railway between Metapedia and Caplin, and to construct the railway from Caplin to a point near Paspebiac ; such powers of construction to be exercised before December 31, 1902; also to operate the railway between Metapedia and Paspebiac, the Baie des Chaleurs division.

By the Subsidy Act of 1901, 1 Ed. VII., chap. 7, item 9, the grant of a subsidy was authorized for the 30 miles between Caplin and Paspebiac, namely, of $3,200 a mile, with a further subsidy of 50 per cent of cost in excess of $15,000 a mile; in all, not exceeding $6,400 a mile; the subsidy contract to be made 'with the trustees or receivers under mortgage from the Atlantic and Lake Superior Railway Company.' The Act provided for payment out of the subsidy, 1st, for certain bridge superstructures, the amount being limited to $35,000; 2nd, 'for the completion of the road-bed and works incidental thereto;' 3rd, 'towards payment of overdue balances, *pro rata,* in settlement of claims for labour, boarding-house claims, and supplies furnished in connection with the said section of railway.'

Under date July 25, 1901, a subsidy contract was entered into accordingly. The road was completed, and, on inspection, was so reported in June, 1903. The question of the amount of subsidy earned remained to be decided, involving decision as to the actual, necessary and reasonable cost of this 30 miles of railway.

On examination, this cost was found to be $589,485.37, and the total subsidy earned $165,735.

By an order in council of July 23, 1904, authority was given for certain payments on that basis, and for the appointment of a special commissioner for the investigation of the various claims presented for labour, &c.

Up to June 30, 1904, payments had been made to the extent of $104,153.98. Of this total, $32,153.98 was for bridge superstructures, and $72,000 to the trustees for road-bed completion.

During the fiscal year 1904-05 there was paid a total of $42,336.86, of which $14,675.84 was paid to the trustees for road-bed completion, and $27,661.02 for labour, &c., making the payments up to June 30, 1905, $32,153.98 for bridge superstructures, $86,675.84 for road-bed completion, and for labour, &c., $27,661.02, a total of $146,-490.84. The number and amounts of the claims put forward for labour, &c., were so considerable, and they were of so complicated a character, that the necessary investigation before the apportionment of the moneys available could be made was a matter of time and difficulty. This investigation was carried out by the department, and, finally, by Judge Langelier, of Quebec, upon whose decision payments have been made as above stated. No further payments have been made up to June 30, 1906.

It has to be observed that, as stated in the annual report of the department for the year 1894-95, subsidy has been paid to the Baie des Chaleurs Railway Company for the portion of this railway from Metapedia eastwardly towards Paspebiac, 70 miles, to the extent of $620,000.

ATLANTIC AND NORTH-WEST RAILWAY COMPANY.

(Leased to the Canadian Pacific Railway Company.)

(See Annual Report of 1889-1890.)

The full history of this subsidy was shown in the annual report for 1889-90. The company receives an annual subsidy of $186,600 for 20 years. The first payment having been made in 1889-90. The total paid up to June 30, 1906, is $3,172,200. Payment is made by the Department of Finance direct.

ATLANTIC, QUEBEC AND WESTERN RAILWAY COMPANY.

(See No. 595.)

This company was incorporated by the Act of Quebec, 1 Ed. VII., (1901) chap. 63 with powers to construct a railway from Gaspeé Basin to some point north of Causapscal, but not beyond Sayabec, in the county of Matane. Other powers were granted of a general commercial character.

By the Dominion Act, 3 Ed. VII., chap. 81 (1903), the above company was declared to be for the general advantage of Canada, and authority was granted to them, in addition to that conferred by their Act of incorporation, to construct a railway from a point north of Causapscal on the Intercolonial Railway, to a point at or near Edmundston, N.B.

By the Dominion Subsidy Act, 3 Ed. VII., (1903) chap. 57, item 51, the grant to this company of a subsidy of $3,200 a mile, with an addition of 50 per cent on the cost in excess of $15,000 a mile, limited in all to $6,400 a mile, was authorized for a railway from Gaspé to a point at or near Causapscal on the Intercolonial Railway, and from that point to Edmundston, not exceeding 260 miles; and for a railway from Paspebiac to Gaspé, not exceeding 102 miles.

The company having applied for the subsidy granted for the line from Paspebiac to Gaspé, a contract was entered into with them, accordingly, on February 25, 1905, under authority of order in council dated January 28, 1905.

No payments have been made up to June 30, 1906.

BAIE DES CHALEURS RAILWAY COMPANY.

(See Annual Report of 1895-96.)

(See also Atlantic and Lake Superior Railway Company.)

THE BAY OF QUINTÉ RAILWAY COMPANY.

(See Nos 434 and 581.)

This company was incorporated by the Dominion Act of 1881, chap. 46, under the name 'The Bay of Quinte Railway and Navigation Company,' with powers to construct a line of railway from Mill Point, county of Hastings, on the Bay of Quinté, to a point of junction with the Grand Trunk Railway.

By the Act of 1896 it was empowered to amalgamate with the Kingston, Napanee and Western Railway Company (formerly the Napanee, Tamworth and Quebec Railway Company), under the name of the Bay of Quinte Railway Company. Its powers were extended to cover the construction of branch lines, not exceeding 20 miles in length, each to connect with mines and mineral lands, and by the Act of 1900, chap. 50, extensive powers were conferred for development of electrical power, and for mining and timber industries. Their powers of construction were extended to June 14, 1905.

By the Subsidy Act of 1899, chap. 7, item 20, as amended by clause 9 of the Subsidy Act of 1900, chap. 8, the grant of aid was authorized to the extent of $3,200 per mile for 10 miles, for extensions, branches and additions to connect their lines of railway or to connect the said lines or connecting lines with iron or other mines or mineral or wood lands in certain counties named. This was in lieu of part of the balance of subsidy granted to the Kingston, Napanee and Western Railway in 1892.

Under date of December 30, 1902, a subsidy contract was entered into with them accordingly.

By the Subsidy Act of 1899, chap. 7, item 45, the grant of aid to the extent of $3,200 per mile with an addition of 50 per cent on average expenditure in excess of $15,000 per mile, the whole not exceeding $6,400 per mile, was authorized for an extension not exceeding 2 miles, of the company's line, westerly, from a point at or near Richmond Boundary Road, near Desoronto, and also for an extension from the end of the said two miles, northerly, for a distance not exceeding 3 miles.

Under date of December 30, 1903, a separate contract was entered into with the company for each of these two sections.

During the fiscal year 1902-03 payment was made of $19,200 for the six miles between Deseronto and Napanee, under the subsidy granted by item 20 of the Act of 1899.

By the Subsidy Act of 1903, chap. 57, item, 37, the grant of aid to the extent of $3,200 per mile with an addition of 50 per cent on the average expenditure in excess of $15,000 per mile, the whole not exceeding $6,400 per mile, was authorized for further extension of the company's line of railway, from the northern terminus thereof, commencing from a point at or near Actinolite, thence in a north-westerly direction via the villages of Queensborough and Bannockburn, to a point in the township of Marmora or Lake in Hastings county, not exceeding 20 miles in all.

Under date of January 23, 1904, a subsidy contract was entered into with the company for the construction of this extension.

The total payments to this company on subsidy account amounted to $69,120, up to June 30, 1904; but there had been previously paid to the Kingston, Napanee and Western Railway Company a total of $208,732.80.

No further payments have been made up to June 30, 1906.

BEERSVILLE COAL AND RAILWAY COMPANY.

(See No. 604.)

This company was incorporated by the Act of New Brunswick, 3 Edward VII., chap. 94 (1903), with power to construct a railway from Adamsville on the Intercolonial Railway to a point at or near Brown's Landing or Beersville, and also to carry on the business of coal mining in all its branches, and other privileges in connection therewith.

By the Subsidy Act of 1903, chap. 57, item 60, a subsidy was authorized for 7 miles of the company's railway from Adamsville to Brown's Landing or Beersville, $3,200 a mile, with a further subsidy of 50 per cent on cost in excess of $15,000 a mile, not exceeding in all $6,400 a mile.

The company were admitted to contract on June 24, 1904.

During the fiscal year 1905, subsidy was paid for this work to the extent of $20,736, the total paid up to June 30, 1906.

BEAUHARNOIS JUNCTION RAILWAY COMPANY.

(Operated by New York Central Railroad,

(See Annual Report of 1895-96.)

BELLEVILLE AND NORTH HASTINGS RAILWAY COMPANY.

(Now part of Grand Trunk Railway System.)

(See Annual Report of 1888-89.)

BOSTON AND NOVA SCOTIA COAL COMPANY.

(See Inverness and Richmond Railway Company.)

(See Annual Report of 1895-96.)

BRACEBRIDGE AND TRADING LAKE RAILWAY COMPANY.

This company was incorporated by the Act 63 Vic., chap. 109 (Ontario), with powers to construct a line of railway to be operated by steam or electricity, or partly by steam and partly by electricity, from a point in the town of Bracebridge to some point in the township of McLean, a distance of about fourteen miles, and to construct, extend and operate a continuation or branch of such railway from Bracebridge to some point on Muskoka Lake at or near Beaumaris, in the township of Monck, a distance of about ten miles, all in the district of Muskoka.

By the Railway Subsidy Act of 1900, 63-64 Vic., chap. 8, item 7, the grant of a subsidy of $3,200 a mile, with a further subsidy of 50 per cent on average expenditure in excess of $15,000 a mile, the whole subsidy not to exceed $6,400, was authorized for a railway from Bracebridge, in Muskoka, to a point at or near Baysville, Ont., not exceeding 15 miles.

The company having applied for this subsidy, a contract was entered into with them, accordingly, on December 30, 1902, under authority of Order in Council, dated April 6, 1903.

No payments have been made up to June 30, 1906.

BROCKVILLE, WESTPORT AND SAULT STE. MARIE RAILWAY COMPANY.

(See Annual Report of 1896-97.)

BRANTFORD, WATERLOO AND LAKE ERIE RAILWAY COMPANY.

(Now part of Toronto, Hamilton and Buffalo Railway.)

(See Annual Report of 1895-96.)

BRUCE MINES AND ALGOMA RAILWAY COMPANY.

(See Annual Report of 1904-05.)

BUCTOUCHE AND MONCTON RAILWAY COMPANY.

(See Annual Report of 1893-94.)

CALGARY AND EDMONTON RAILWAY COMPANY.

(See Annual Report for 1890.)

(Leased to Canadian Pacific Railway.)

CANADA ATLANTIC RAILWAY COMPANY.

(Now part of Grand Trunk Railway System.)

(See Annual Report of 1888-89; also see under head of Ottawa, Arnprior and Parry Sound Railway Company.)

CANADA EASTERN RAILWAY CO. (FORMERLY NORTHERN AND WESTERN RAILWAY COMPANY OF NEW BRUNSWICK, NOW PART OF THE INTERCOLONIAL SYSTEM.)

(See the Annual Reports for the years 1894-95 and 1899-1900.)

CANADIAN BRIDGE COMPANY.

(See South Shore Railway Company, Quebec,)

CANADIAN NORTHERN RAILWAY COMPANY.

(See Nos. 446, 493.)

By the Dominion Act 62-63 Vic., chap. 57 (1889), authority was granted for the amalgamation of the Winnipeg Great Northern Railway Company (formerly the Winnipeg and Hudson's Bay Railway and Steamship Company, the name of which was by the Act of 1887, chap. 81, changed to the Winnipeg and Hudson's Bay Railway

Company), and the Lake Manitoba Railway and Canal Company, under the name of the Canadian Northern Railway Company, and the agreement for such amalgamation was confirmed; authority also was given for the construction of a railway from Prince Albert to Edmonton, also a branch from a point on that line to the Peace river, together with certain other branch lines.

The Dominion Act 1 Ed. VII., chap. 52 (1901), confirmed certain agreements for amalgamation of the Manitoba and South-eastern Railway Company and the Ontario and Rainy River Railway Company with the above company; it also granted authority to coustruct certain lines of railway described.

By the Dominion Act 1 Ed. VII., chap. 53 (1901), authority was granted to the above company, to lease, with the option of purchase the Northern Pacific and Manitoba Railway, the Winnipeg Transfer Railway Company, Limited, the Portage and North-western Railway Company, and the Waskada and North-eastern Railway Company.

By the Dominion Subsidy Act 62-63 Vic., (1889), chap. 7, item 32, the grant of a subsidy of $3,200 a mile, with an addition of 50 per cent on the cost in excess of $15,000 a mile, limited in all to $6,400 a mile, was authorized for 100 miles of railway from a point on the Winnipeg Great Northern Railway north of Swan river to Prince Albert, N.W.T.

By the Dominion Subsidy Act 63-64 Vic., (1900), chap. 8, item 18, the grant of a similar subsidy for 100 miles of railway in further extension of the company's line from north of Swan river towards Prince Albert, was authorized.

The company having applied, they were admitted to contract under both subsidies, the two agreements being dated December 7, 1903.

The payments made to this company under the aforesaid agreements aggregate the following amounts:—

For the Ontario and Rainy River Railway (see the Annual Report for 1902-03), $1,534,976, all paid prior to June 30, 1903.

For the Prince Albert Branch, $374,156.

The total of the above payments amounts to $1,909,132, up to June 30, 1904.

By the Special Act 3 Ed. VII., chap. 7 (1903), assistance was granted for the extension of the company's railway for 620 miles from Grandview, the terminus of their Gilbert Plains branch to Edmonton, and for a distance of 100 miles east of Prince Albert to Prince Albert, by guaranteeing the principal and interest at 3 per cent per annum of first mortgage bonds and other securities to the extent of $13,000 a mile, the principal to be payable in 50 years from the passage of the Act.

Under date July 29, 1903, a trust mortgage between the Canadian Northern Railway Company, the British Empire Trust Company, Limited, the National Trust Company, Limited, and His Majesty, was executed in pursuance of the provisions of the said Act, the security to be held by the trustees to be a charge on the two lines of railway thereunder to be constructed, with their equipment, buildings and appurtenances, on the balance of the Prince Albert Branch east of Erwood, and on the com-

pany's already constructed and operated lines from Port Arthur westwards as enumerated in a schedule attached, with their buildings, equipment and appurtenances.

Under the same date, July 29, 1903, an agreement was made with the company for the construction of the said two lines of railway, accordingly, the line from Grandview to Edmonton to be completed by October 1, 1905, and the 100 miles east from Prince Albert by the same date. By an Order in Council of November 3, 1905, the time for completion was extended to October 1, 1906.

Under orders in council of November 5, 1903, March 10, 1904, August 18, 1904, January 13, 1905, and August 25, 1905, authority has been given for the payment out of moneys deposited with the government, as proceeds of the company's stock, for that purpose, under the said agreement of the sum of $7,415,200, for the work executed on the 620 miles between Grandview and Edmonton, and of the sum of $1,144,000, for work on the 100 miles east from Prince Albert, being the proportion of the guarantee earned for the execution of 92 per cent of the estimated cost, $11, 341,300, of the work to be done on the 620 miles, including equipment, and of 88 per cent of the estimated cost, $1,709,115, of the work to be done on the 100 miles, including equipment.

This represents the position up to June 30, 1906.

For certain portions of the company's lines, under the aforesaid amalgamations, land grants have been authorized (see Winnipeg Great Northern Railway Company and Manitoba and South-eastern Railway Company in annual report for 1895-96.) These matters are dealt with by the Department of the Interior.

The company further, by virtue of this amalgamation, have an agreement with the government for the transport of men, supplies, materials and mails for 20 years over the portion of their line from Gladstone to a point half way to the River Saskatchewan.

CANADIAN PACIFIC RAILWAY COMPANY.

(Revelstoke to Arrow Lake.)

(See Annual Report for 1896-97.)

CANADIAN PACIFIC RAILWAY COMPANY.

(Pipestone Branch—Antler station to Moose mountain.)

(See Annual Report for 1901-02.)

CANADIAN PACIFIC RAILWAY COMPANY.

(Crow's Nest Pass Railway.)

(See Annual Report for 1902-03.)

CANADIAN PACIFIC RAILWAY COMPANY.

(Waskada Branch.)

(See No. 494.)

By the Railway Subsidy Act of 1900, 62-64 Vic., chap. 8, item 19, the grant of a subsidy of $3,200 a mile, with an addition of 50 per cent on cost in excess of $15,000 a mile, but not exceeding in all $6,400 a mile, was authorized for a railway from the

westerly end of the Waskada branch of the Canadian Pacific Railway, Manitoba, for 20 miles further.

That company having applied for the said subsidy, a contract was entered into with them for the work on December 28, 1901, under authority of orders in council, dated July 6, September 11, October 3, and November 30, 1901. No portion of the subsidy was paid up to June 30, 1902.

In the fiscal year 1903-04 payments were made to the extent of $64,000.

No further payments have been made up to June 30, 1906.

CANADIAN PACIFIC RAILWAY COMPANY.

(Pheasant Hills Branch.)

(See No. 616.)

By the Subsidy Act of 1903, Ed. VII., chap. 57, item 72, the grant of a subsidy of $3,200 a mile with an addition of 50 per cent on cost in excess of $15,000 a mile, but not exceeding in all $6,400 a mile, was authorized for a railway from a point on the main line of the Canadian Pacific Railway between Moosomin and Elkhorn, northwesterly to a point in the neighbourhood of the Pheasant Hills, not exceeding 136 miles.

The company having applied, a contract was entered into with them on January 14, 1904, under authority of orders in council of November 17, 1903, and January 12, 1904.

During the fiscal year, 1905, subsidy was paid for this work to the extent of $56.576, making the total payments up to June 30, 1905, $435,200.

No further payments have been made up to June 30, 1906.

CANADIAN PACIFIC RAILWAY COMPANY.

(Dyment Branch.)

(See Annual Report for 1902-03.)

CANADIAN PACIFIC RAILWAY COMPANY.

(See No. 593.)

By the Railway Subsidy Act 3 Ed. VII., (1903) chap. 57, section 2, item 49, the grant of a subsidy of $3,200 a mile, with an addition of 50 per cent on average cost in excess of $15,000 a mile, but not exceeding in all $6,400 a mile, was authorized for a branch line of railway from a point at or near the intersection of the Canadian Pacific Railway and the Great Northern Railway between St. Philippe d'Argenteuil and Lachute, thence in a northerly direction, passing through the village of Brownsburg, not exceeding 3 miles.

This company having applied for the said subsidy, a contract was entered into with them for the work on March 20, 1906, under authority of orders in council dated November 8, 1905, and February 19, 1906.

No payments have been made up to June 30, 1906.

CANADIAN PACIFIC RAILWAY COMPANY.

(West Selkirk—Lake Winnipeg Branch.)

(See Annual Report for 1902-03.)

CAP DE LA MADELEINE RAILWAY COMPANY.

(Leased to Canadian Pacific Railway.)

(See Annual Report of 1896-97.)

CAPE BRETON RAILWAY EXTENSION COMPANY, LIMITED.

(See Annual Report of 1895-96.)

(See No. 420.)

This company was incorporated by 62 Vic., chap. 126 (1889), of the Acts of Nova Scotia, with powers to construct a railway between Canso and Louisburg and to construct a bridge or tunnel over or under the Straits of Canso, or to operate a ferry.

By the Nova Scotia Act of 1902, chap. 190, it was further empowered to build branches from any point on its main line or branches to any other point in the county of Cape Breton.

By the Subsidy Act of 1899, 62-63 Vic., chap. 7, the grant of a subsidy of $3,200 a mile, with an addition of 50 per cent on the average cost in excess of $15,000 a mile, in all not exceeding $6,400 a mile, was authorized in aid of a railway from Port Hawkesbury, on the Strait of Canso, N.S., to St. Peter's, 30 miles. b

The above company, having applied, were admitted to contract for work on September 15, 1900. Payments have been made up to June 30, 1904, of $182,400.

No further payments have been made up to June 30, 1906.

CENTRAL COUNTIES RAILWAY COMPANY.

(See No. 574.)

This company was originally incorporated by the Dominion Act, 50-51 Vic., (1887) chap. 82, under the name of the Prescott County Railway, with powers to construct and operate a railway from a point in or near the village of Hawkesbury, in the county of Prescott, to a point on the line of the Ontario and Quebec Railway in the county of Soulanges, in the province of Quebec, and to a point on the line of the Canada Atlantic Railway, in the county of Glengarry, and to the River St. Lawrence, in or near the town of Cornwall, with a branch to Caledonia Springs.

By the Dominion Act 52 Vic., chap. 80, the name of the company was changed to the above, and power granted to construct a bridge across the Ottawa river. By a further Dominion Act, 2 Edward VII., chap. 53, power was granted for the extension of the railway from Hawkesbury to South Indian.

This railway is now operated by the Grand Trunk Railway System, under a lease to the Canada Atlantic Railway.

By the Dominion Subsidy Act of 1903, 3 Edward VII., chap. 57, the grant of a subsidy of $3,200 a mile, with an addition of 50 per cent on the cost in excess of $15,000 a mile, not exceeding in all $6,400 a mile, was authorized for 35 miles, and

has been granted to this company, in lieu of the subsidy authorized by item 22 of sec. 2 of chap. 7 of 1899.

Application having been made, the company was admitted to contract for this work on December 26, 1903, under authority of the Order in Council of December 12, 1903.

No payments have been made up to June 30, 1906.

CENTRAL ONTARIO RAILWAY COMPANY.

(See Annual Report for 1900-01.)

(See No. 547.)

The history of this railway was given in the annual report for 1900-01, with a statement of the subsidies paid for the then completed line of railway.

By the Railway Subsidy Act, 3 Ed. VII., (1903) chap. 57, section 2, item 4, the grant of a subsidy of $3,200 a mile, with a further subsidy of 50 per cent on average cost in excess of $15,000 a mile, not exceeding in all $6,400 a mile, was authorized for a further extension of the company's railway from a point at or near Bancroft to a point on the Canada Atlantic Railway at or near Whitney, not exceeding 40 miles, in lieu of subsidies granted by item 5 of section 2 of chapter 8 of 1900, and item 16 of section 2 of chapter 7 of 1901, respectively.

The company having applied for this subsidy, a contract was entered into with them, accordingly, on September 6, 1905, under authority of an order in council dated July 22, 1905; the road to be completed by August 1, 1907.

No payments have been made up to June 30, 1906.

CENTRAL RAILWAY COMPANY OF NEW BRUNSWICK.

(See Annual Report for 1902-03.)

CHATEAUGUAY AND NORTHERN RAILWAY COMPANY.

(See Nos. 507, 508, 509, 599 and 631.)

This company was incorporated by the Quebec Act of 1895 (1), chap. 64, its powers of construction being modified by the Act, chap. 75 of 1896.

By the Dominion Subsidy Act of 1900, 63-64 Vic., chap. 8, the grant to this company of a subsidy of $3,200 a mile, with an addition of 50 per cent on the cost in excess of $15,000 a mile, not exceeding in all $6,400 a mile, was authorized for 42 miles of a railway from a point in Hochelaga ward, Montreal, to a point on the Great Northern Railway in or near the town of Joliette, with a spur into the town.

The company were admitted to contract for this work on January 19, 1901.

On the same date they were admitted to contract for two other works, specially subsidized by the same Act, viz., for a railway, vehicular, and foot-passenger bridge from Bout de L'Ile to Charlemagne, at the junction of the Rivers Ottawa and St. Lawrence, $150,000, and for a bridge across the Lac Ouareau river, $15,000. No portion of these three subsidies has been paid up to June 30, 1903.

By the Dominion Subsidy Act of 1903, chap. 57, item 55, the grant to this company of a subsidy of $3,200 a mile, with an addition of 50 per cent on the cost in excess of $15,000 a mile, limited in all to $6,400 a mile, was authorized for 16 miles of a railway from a point on its main line at or near L'Epiphanie, via the parish of St. Jacques de l'Achigan to the village of Rawdon.

The company were admitted to contract for this work on December 12, 1903.

By the Dominion Subsidy Act of 1903, chap. 57, sec. 3, sub-sec. 4, a subsidy was authorized for the Bout de L'Ile bridge of $50,000, in addition to that granted by item 33 of section 2, of chap. 8, of 1900.

The total of the payments made to the company up to June 30, 1904, amounted to $151,595, including $99,000 for bridges.

By the Railway Subsidy Act, 4 Edw. VII., (1904) chap. 24, section 3, the balance remaining unpaid of the subsidy granted by item 33 of section 2 of chapter 8 of 1900, for a single-track standard railway bridge, with two roadways 10 feet wide for free vehicular traffic, the same as upon a public highway, from Bout de L'Ile to Charlemagne at the junction of the Ottawa and St. Lawrence rivers, a sum not exceeding $51,000 was authorized.

The company were admitted to contract for this work on November 12, 1904, under authority of an order in council dated September 26, 1904.

The two bridges, subsidized as above, are completed, and during the past fiscal year the full amount of the subsidies, $116,000, has been paid, making the total payments for these works, $215,000.

By the Railway Subsidy Act, 4 Edw. VII., (1904) chap. 34, section 2, item 5, the subsidy granted by chapter 8 of 1900, section 2, item 32, 42 miles of railway, was revoted.

The company having applied for this subsidy, a contract was entered into with them, accordingly, on June 26, 1906, under authority of an order in council dated February 16, 1906.

No payments have been made up to June 30, 1906.

CHATHAM BRANCH RAILWAY COMPANY.

(Now part of Intercolonial Railway.)

(See Annual Report of 1893-94.)

CHIGNECTO MARINE TRANSPORT COMPANY.

(See Annual Report for 1894-96.)

COAST RAILWAY COMPANY OF NOVA SCOTIA.

(Name changed to Halifax and Yarmouth Railway Company by Nova Scotia Statute of 1899, chap 128.)

(See Annual Report of 1904-05.)

COMPAGNIE DU CHEMIN DE FER DE COLONIZATION DU NORD.

(See No. 451.)

This company was incorporated by the Dominion Act 62-63 Vic., chap. 62 (1889), with powers to construct and operate a railway from a point in or near Labelle, in the county of Labelle, Quebec, and passing within a mile of the parish church of L'Annonciation, in the township of Marchand, in the said county, and within a mile of the parish church in the village of Nomininge, in the township of Loranger, and within a mile of the village of Rapide de L'Orignal, in the townships of Robertson and Campbell, and thence in a westerly direction to a point at or near Lake Temiscamingue, in the county of Pontiac.

By the Railway Subsidy Act 62-63 Vic., chap. 7 (1889), item 37, the grant of a subsidy of $3,200 a mile, with a further subsidy of 50 per cent on the average expenditure in excess of $15,000 a mile, the whole subsidy not to exceed $6,400 a mile, was authorized for a railway for a distance not exceeding 22 miles from Labelle in a north-westerly direction, to Nomininge, via Notre Dame de l'Annonciation.

The company having applied for this subsidy, a contract was entered into with them, accordingly, on July 8, 1902.

During the past fiscal year, payments have been made to the extent of $75,376, making the total payments up to June 30, 1906, $128,760.

COBOURG, NORTHUMBERLAND AND PACIFIC RAILWAY COMPANY.

(See Annual Report for 1900-01.)

COLUMBIA AND KOOTENAY RAILWAY AND NAVIGATION COMPANY.

(*Leased to the Canadian Pacific Railway Company.*)

(See Annual Report for 1891-92.)

CORNWALLIS VALLEY RAILWAY COMPANY.

(Now part of Dominion Atlantic Railway.)
(See Annual Report for 1891-92.)

CUMBERLAND RAILWAY AND COAL COMPANY.

(See Annual Report for 1894-95.)

DOMINION ATLANTIC RAILWAY COMPANY.

(See Western Counties Railway Company.)

DOMINION EASTERN RAILWAY COMPANY.

(See Annual Report for 1900-01.)

DOMINION LIME COMPANY.

(Now part of Hereford Railway.)

(See Annual Report for 1888-89.)

DOMINION COAL COMPANY.

(Now Sydney and Louisburg Railway.)

(See Annual Report for 1895-96.)

DRUMMOND COUNTY RAILWAY COMPANY.

(Now part of Intercolonial Railway.)

(See Annual Report of 1900-01.)

EAST RICHELIEU VALLEY RAILWAY COMPANY.

(Now part of Quebec Southern Railway.)

(See Annual Report of 1888-89.)

EDMONTON, YUKON AND PACIFIC RAILWAY COMPANY.

(See Nos. 455, 572.)

This company was incorporated by the Dominion Act of 1896, 59 Vic., chap. 71, under the name of the Edmonton District Railway, with powers to construct and operate a railway from some point within the town of Edmonton to a point in South Edmonton on the Calgary and Edmonton Railway and to connect therewith; also from some point within the town of Edmonton, via the village of St. Albert, to a point on the Athabaska river, at or near Fort Assiniboine, with a branch to Stony Plains; also from some point within the town of Edmonton to a point at or near Fort Saskatchewan, together with a branch to a point on Sturgeon river. Other powers were granted of a general commercial character.

By the Dominion Act of 1898, 61 Vic., chap. 63, the company was empowered to extend their line of railway from the Athabaska to the navigable waters of Pelly river.

By the Dominion Act of 1889, 62-63 Vic., chap. 64, the name of the company was changed to the above, with powers to extend the railway via the Yellow Head Pass or the Peace River Pass, to a point in British Columbia, or to connect with the railway which the British Pacific Railway Company is authorized to construct, and also to construct and operate a branch line to some point on the Yukon river.

By the Dominion Subsidy Act of 1903, 3 Edw. VII., chap. 57, item 28, the grant to this company of a subsidy of $3,200 a mile, with an addition of 50 per cent on the cost in excess of $15,000 a mile, limited in all to $6,400 a mile, was authorized for 50 miles of a railway from the town of Strathcona to Edmonton, and thence westerly towards the Yellow Head Pass.

The company having applied for this subsidy, a contract was entered into with them, accordingly, on June 24, 1904, the road to be completed by December, 1906.

No payments have been made up to June 30, 1906.

ELGIN, PETITCODIAC AND HAVELOCK RAILWAY COMPANY.

(See Annual Reports for 1885-86 and 1890-91.)

ERIE AND HURON RAILWAY COMPANY.

(Now part of Lake Erie and Detroit River Railway.)

(See Annual Report for 1886-87.)

ESQUIMALT AND NANAIMO RAILWAY COMPANY.

(Now part of Canadian Pacific Railway System.)

(See Annual Report for 1886-87.)

FREDERICTON AND ST. MARY'S BRIDGE COMPANY.

(Now part of Intercolonial Railway.)

(See Annual Report of 1904-05.)

GRAND TRUNK, GEORGIAN BAY AND LAKE ERIE RAILWAY COMPANY.

(Now part of Grand Trunk Railway System.)

(See Annual Report for 1893-94.)

GRAND TRUNK RAILWAY COMPANY.

(See Annual Report of 1900-01.)

GREAT EASTERN RAILWAY COMPANY.

(See Annual Report for 1896-97.)

GREAT NORTHERN RAILWAY OF CANADA (FORMERLY THE GREAT NORTHERN RAILWAY. COMPANY.)

(See Annual Report for 1902-03.)

GULF SHORE RAILWAY COMPANY OF NEW BRUNSWICK.

(See Annual Report for 1899-1900.)

GUELPH JUNCTION RAILWAY COMPANY.

(Leased to Canadian Pacific Railway.)

(See Annual Report of 1888-89.)

HALIFAX AND SOUTH-WESTERN RAILWAY COMPANY.

(See Nos. 567, 619.)

This company was declared to be incorporated under date of the 21st day of August A.D. 1901, by the Act of the province of Nova Scotia, 2 Edward VII., chap. 1 (1902), for the construction and operation of a railway from a point on the Intercolonial Railway at or near Halifax to Barrington Passage, and also from a junction with the Central Railway, at or near New Germany, to Caledonia Corners.

By the Dominion Subsidy Act of 1903, chap. 57, items 23 and 75, the grant of a subsidy of $3,200 a mile, with an addition of 50 per cent on cost in excess of $15,000 a

mile, not exceeding in all $6,400 a mile, was authorized for lines of railway (*a*) from a point at or near Halifax to a point on the Central Railway at or near Mahone Bay, 68 miles; (*b*) from a point on the Central Railway at or near Bridgewater towards Barrington Passage, 77 miles, and an addition to and continuation of the same, 35 miles; (*c*) from a point at or near New Germany on the Central Railway to a point at or near Caledonia, 22 miles; (*d*) and from a point at or near Caledonia to Liverpool, 29 miles.

The company was admitted to contract on November 9, 1903, under authority of an order in council dated November 4, 1903.

During the past fiscal year, payments have been made to the extent of $176,512, making the total payments up to June 30, 1906, $653,776.

HALIFAX AND YARMOUTH RAILWAY COMPANY.

(Formerly the Coast Railway Company of Nova Scotia, which see.)

(Name changed by Nova Scotia Statute of 1899, Chap. 128.)

(See Annual Report for 1902-03.)

HARVEY BRANCH RAILWAY COMPANY.

(See Annual Report of 1889-90.)

HEREFORD RAILWAY COMPANY (FORMERLY HEREFORD BRANCH RAILWAY COMPANY).

(See Annual Report of 1891-92.)

INTERNATIONAL RAILWAY COMPANY

(Now part of Canadian Pacific Railway System.)

(See Annual Reports of 1887-88 and 1889-90.)

INTERNATIONAL RAILWAY COMPANY OF NEW BRUNSWICK.

(Formerly the Restigouche and Western Railway Company, which see.)

This company was incorporated by letters patent, dated May 19, 1903, in pursuance of the Act of the legislature of New Brunswick of that year, entitled 'An Act in aid of the construction of certain railways,' with powers to construct a line of railway commencing at the terminus of the first section of 10 miles of railway extending from Campbellton, N.B., westward, built for the Restigouche and Western Railway Company, to the St. John river at a point between Grand Falls and Edmundston, with power to acquire the said 10 miles already built, and to issue debentures on the said line of railway, including the first section of 10 miles, when acquired, to the extent of $5,000 per mile; the capital stock to be $600,000, with provision for increase to $1,500,000.

By the Subsidy Act of 1903, chap. 57, item 14, authority was given for the grant of a subsidy to the above company for a line of railway from the western end of the 10 miles of its railway already constructed from Campbellton towards a point on the St. John river between Grand Falls and Edmundston, not exceeding 67 miles, being in lieu of previous subsidies.

Under date of May 13, 1905, a subsidy contract was entered into with the company accordingly, under the authority of an Order in Council of the 8th of that month.

No payments have been made up to June 30, 1906.

INVERNESS RAILWAY AND COAL COMPANY.

(Name changed from Inverness and Richmond Railway Company by the Act of the province of Nova Scotia, 2 Edward VII., chap. 162 of 1902.)

(See Nos. 208, 251, 357, 400, 523 and 568.)

This company was incorporated by the Act of the province of Nova Scotia, 50 Vic., chap. 60 (1887), with powers for the construction of a line of railway between Hawkesbury and a point in the district of Margaree. By the Act of 1888, chap. 79, the location of the line was authorized as from Port Hawkesbury, through Port Hastings, Judique, Port Hood, Mabou and Margaree, to a point at Eastern Harbour, Cheticamp.

By the Subsidy Act, 57-58 Vic., chap. 4 (1894), assistance to the extent of $80,000 was authorized for 25 miles of railway from Port Hawkesbury towards Cheticamp, and the above company was admitted to contract for the work on November 23, 1894.

By the Subsidy Act of 1897, 60-61 Vic., chap. 4, in lieu of the subsidy granted in 1894, a subsidy of $3,200 a mile with an addition of 50 per cent on expenditure in excess of $15,000 a mile, such subsidy in all not to exceed $6,400 a mile, was authorized for a railway from Port Hawkesbury to Port Hood and Broad Cove, 53 miles, and the company was admitted to contract thereunder on April 29, 1898.

By the Subsidy Act of 1903, chap. 57, item 24, the grant of a subsidy for 30 miles of railway from Cheticamp to a point on the line already built between Broad Cove and Point Tupper, being a revote and in substitution of the subsidy granted by chap. 4 of 1897, was authorized.

The company was admitted to contract on November 9, 1903; the time for completion being fixed as August 1, 1905.

The total payments up to June 30, 1904, amounted to $368,545.97.

Under the authority of an Order in Council, dated August 25, 1905, the time for completion of the company's works has been extended to August 1, 1907, being the statutory limit for the completion of the said works.

No further payments have been made up to June 30, 1906.

IRONDALE, BANCROFT AND OTTAWA RAILWAY COMPANY.

(See Annual Report for 1900-01.)

JAMES BAY RAILWAY COMPANY.

(See No. 583.)

This company was incorporated by the Dominion Act of 1895, chap. 50, with powers for the construction of a line of railway from Parry Sound, in the province of Ontario, to French river, at or near Doke's Indian reserve, thence in a northerly direction to the easterly side of Lake Wahnapitae, and thence to a point at or near the mouth of Moose river, on James's Bay. Other powers of a general commercial character were granted.

By the Act of 1897, chap. 47, an extension of its line of railway was authorized from Parry Sound to the city of Toronto, in addition to the line of railway authorized by the Act incorporating the company. Powers were also given to acquire and utilize water and steam power for the purpose of generating electricity for lighting, heating and motor purposes in connection with its railway or any branch or part thereof, also to construct and operate telegraph and telephone lines along the whole length of the railway extension and branches. All the provisions of the Act incorporating the company as to the issue of bonds, debentures or other securities, and all the other powers of the company, shall apply to the extension and branch lines authorized.

By the Dominion Subsidy Act, 3 Edward VII. (1903), chap. 57, section 2, item 39, the grant to this company of a subsidy of $3,200 a mile, with an addition of 50 per cent on the cost in excess of $15,000 a mile, not exceeding in all $6,400 a mile, was authorized for a line of railway from Toronto, via the east side of Lake Simcoe, to a point at, near, or beyond Sudbury, through Parry Sound, not exceeding 265 miles, in lieu of two subsidies granted by chapter 8 of 1900, for 35 and 20 miles, respectively, from Parry Sound towards James Bay.

The company having applied for this subsidy, a contract was entered into with them, accordingly, on September 8, 1904, under authority of orders in council, dated December 24, 1903, and July 23, 1904.

Work has been done under this contract to the extent of 48 per cent of the total required, and, under authority of an Order in Council, dated April 2, 1906, payment has been made to the extent of $651,264.

JOGGINS RAILWAY COMPANY.

(Now Canada Coals and Railway Company.)

(See Annual Report for 1891-92.)

KETTLE RIVER VALLEY RAILWAY COMPANY.

(See No. 611.)

This company was incorporated by the Dominion Act of 1901, chap 68, with powers for the construction of a line of railway from a point on the international boundary line at or near Cascade city, British Columbia, thence running in a westerly direction, following the course of the Kettle river, to a point on the said international boundary line at or near Carson city, with a branch from a point at or near Grand Forks to a point 50 miles up the north fork of the Kettle river, following the valley of the same river; also with a branch from a point at or near Grand Forks, via Greenwood, to a point on the international boundary line at or near Midway. In addition, the company was authorized to form connections at the boundary line, at the said points, with a proposed railway to Republic in the State of Washington, and generally with the railway system of the United States.

By the Act of 1904, chap. 89, additional lines of railway were authorized. (*a*) From a point 50 miles up the north fork of the Kettle river, thence via Fire Valley to Vernon, thence westerly to a junction with the Nicola, Kamloops and Similkameen Coal and Railway Company at or near Quilchena. (*b*.) From a point on the line so to be constructed at or near the junction of the east fork and west fork of the north

fork of Kettle River to Franklin Camp, thence to Killarney by the most feasible route.

By the Dominion Subsidy Act, 3 Edw. VII., (1903) chap. 57, section 2, item 67, the grant to this company of a subsidy of $3,200 a mile, with an addition of 50 per cent on the cost in excess of $15,000 a mile, not exceeding in all $6,400 a mile, was authorized for a line of railway from Grand Forks to a point 50 miles up the north fork and west fork of the north fork of Kettle river, not exceeding 50 miles.

The company having applied for this subsidy, a contract was entered into with them, accordingly, on July 28, 1905, under authority of an order in council of the same date.

No payments have been made up to June 30, 1906.

KINGSTON, NAPANEE AND WESTERN RAILWAY COMPANY.

(Amalgamated with Bay of Quinte Railway Company.)

(See Napanee, Tamworth and Quebec Railway.)

KINGSTON AND PEMBROKE RAILWAY COMPANY.

(See Annual Report for 1884-85.)

KLONDIKE MINES RAILWAY COMPANY.

(See No. 615.)

This company was incorporated by the Dominion Act of 1899, chap. 72, with powers for the construction of a line of railway from Klondike City along the Klondike river to Bonanza Creek, and thence along the Yukon river to Dawson City, together with power to construct certain branch lines. Other powers of a general commercial character were granted.

By the Subsidy Act of 1903, chap. 57, section 2, item 71, the grant of a subsidy of $3,200 a mile, with an addition of 50 per cent on average cost in excess of $15,000 a mile, limited in all to $6,400 a mile, was authorized for a railway from Dawson to Stewart river, not exceeding 84 miles.

The company having applied for this subsidy, a contract was entered into with them for the work on February 1, 1905, under authority of orders in council of May 7 and December 24, 1904, and January 7, 1905.

The time for completion of this railway has been extended to August 1, 1907.

No payments have been made up to June 30, 1906.

KOOTENAY AND ARROWHEAD RAILWAY COMPANY.

(Leased to Canadian Pacific Railway Company.)

(See No. 543.)

This company was incorporated by the Act 1, Ed. VII., chap. 70 (1901), with powers to construct a railway from a point at or near Lardo, near the head of Kootenay lake, to a point at or near Duncan; thence north-westerly to Arrowhead on Arrow lake, B.C., together with such branch lines, none to exceed 30 miles, as may be au-

thorized by the Governor in Council. The company were empowered to lease or sell their works to certain companies named, including the Canadian Pacific Railway Company.

On August 15, 1901, this railway was leased to the Canadian Pacific Railway Company for a term of 999 years. The leasing was approved by an Order in Council of June 29, 1903.

By the Subsidy Act of 1901, chap. 7, item 28, the grant of a subsidy of $3,200 a mile, with an addition of 50 per cent on cost in excess of $15,000 a mile, limited to $6,400 in all, was authorized for a railway from Duncan lake towards Lardo or Arrow lake, B.C., or from Lardo to Arrow lake, not exceeding 30 miles.

The company having applied for this subsidy, a contract was entered into with them for the work on August 26, 1901, under authority of orders in council of June 8 and July 6, 1901; the time for completion being fixed as August 1, 1903. The road was built from Lardo to Trout lake, 33 miles, and was inspected in June, 1902, with a view to its being opened for public traffic.

The time for completion of the said works was extended to September 1, 1907.

During the past fiscal year, subsidy was paid to the extent of $89,076, making the total payments up to June 30, 1906, $93,252.15.

KOOTENAY CENTRAL RAILWAY COMPANY.

(See No. 610.)

This company was incorporated by the Dominion Act of 1901, chap. 71, with powers for the construction of a line of railway. (*a.*) From Fort Steele to Elko or some other convenient point on the Crow's Nest Railway between Elko and Wardner, thence on either the east or west side of the Wigwam river, or by the most convenient route, to the international boundary line. (*b.*) From Fort Steele to Windermere, by either the east or west side of the Kootenay river, thence to the town of Golden on the main line of the Canadian Pacific Railway, and may build and operate such tramways in connection therewith, not exceeding in any one case ten miles in length, as are from time to time authorized by the Governor in Council. Other powers of a general commercial character were granted, including the acquisition and operation of smelters. By the Dominion Subsidy Act, 3 Edward VII. (1903), chap. 57, section 2, item 66, the grant to this company of a subsidy of $3,200 a mile, with an addition of 50 per cent on the cost in excess of $15,000 a mile, limited in all to $6,400 a mile, was authorized for a line of railway from Golden to the international boundary line, via Windermere and Fort Steele, and crossing the Crow's Nest Railway at or near Elko, not exceeding 186 miles.

The company having applied for this subsidy, a contract was entered into with them accordingly, on June 23, 1906, under authority of an order in council dated May 14, 1906.

No payments have been made up to June 30, 1906.

LAKE ERIE AND DETROIT RIVER RAILWAY COMPANY.

Formerly 'the Lake Erie, Essex and Detroit Railway Company.' Name changed by Dominion Act, 54-55, Vic., chap. 88 (1891).

(See Annual Report for 1901-02.)

L'ASSOMPTION RAILWAY COMPANY.

(See Annual Report of 1886-87.)

LEAMINGTON AND ST. CLAIR RAILWAY COMPANY.

(Amalgamated with Canada Southern Railway.)

(See Annual Report of 1888-89.)

LAKE TEMISCAMINGUE COLONIZATION RAILWAY COMPANY.

(Now part of Canadian Pacific Railway System.)

(See Annual Report of 1896-97.)

LAURENTIAN RAILWAY COMPANY.

(See St. Lawrence, Lower Laurention and Saguenay Railway Company.)

LINDSAY, BOBCAYGEON AND PONTYPOOL RAILWAY COMPANY.

(Leased to Canadian Pacific Railway Company.)

(See Annual Report of 1904-05.)

LOTBINIÈRE AND MEGANTIC RAILWAY COMPANY.

(See Annual Report of 1896-7.)

MABOU AND GULF RAILWAY COMPANY, LIMITED.

(See No. 562.)

This company was incorporated by the Act of the province of Nova Scotia, 2 Edw. VII. (1902), chap. 134, with powers for the construction of a line of railway from the Mabou coal mines, in the county of Inverness, to a shipping point on Mabou Harbour, thence to connect with the Inverness and Richmond Railway, and also a branch connecting with the Intercolonial Railway at or near Orangedale; and a branch from a point on the Intercolonial Railway to a shipping pier on Caribou Cove or Inhabitants Bay. Other powers of a general commercial character were granted.

By the Dominion Railway Subsidy Act, 3 Edw. VII. (1903), chap. 57, section 2, item 18, the grant to this company of a subsidy of $3,200 a mile, with an addition of 50 per cent on the cost in excess of $15,000 a mile, limited in all to $6,400 a mile, was authorized for a line of railway from Mabou coal mines to a point at or near Glendyer, thence to Orangedale on the Intercolonial Railway, not exceeding 34 miles, a revote of the subsidy granted by chapter 4 of 1894, and in substitution of the 25 miles subsidized thereby from Orangedale to Broad Cove.

The company having applied for this subsidy, a contract was entered into with them, accordingly on July 5, 1905, under authority of an Order in Council, dated June 28, 1905.

No payments have been made up to June 30, 1906.

MAGANETAWAN RIVER RAILWAY COMPANY.

This company was incorporated by the Act 1 Edward VII. (Ontario), chap. 83 (1901), with powers to construct a railway between a point in or near the village of Burk's Falls, in the district of Parry Sound, and a point on the Maganetawan river, in the said district of Parry Sound, where the said river is navigable for vessels.

By the Railway Subsidy Act, 1 Edward VII., chap. 7 (1901), item 22, the grant of a subsidy of $3,200 a mile, with a further subsidy of 50 per cent on an average expenditure in excess of $15,000 a mile, the whole subsidy not to exceed $6,400, was authorized for a line of railway from a point on the Grand Trunk Railway at or near Burk's Falls, Ontario, to the Maganetawan river, not exceeding two miles.

The company having applied for this subsidy, a contract was entered into with them, accordingly, on March 19, 1903.

During 1902-03 there was paid to the company the sum of $3,552.

No further payments were made up to June 30, 1906.

MANITOULIN AND NORTH SHORE RAILWAY COMPANY.

(See No. 481.)

This company was incorporated by the Dominion Act of 1900, chap. 64, 63-64 Vic., with powers to construct a line of railway from Little Current, Manitoulin Island, to a point 100 miles northerly, crossing the Canadian Pacific Railway at or near Onaping or Cartier stations; also from a point in or near the township of Drury or Hyman, on its said line, easterly to Sudbury, also from a point at or near Little Current, south-easterly to the south shore of Manitoulin Island, or Fitzwilliam Island, and from a point near Tobermory to Meaford, passing through Wiarton and Owen Sound; also with powers for dock construction, ferry operation, and electric power production.

By the Subsidy Act of 1900, chap. 8, item 6, aid was authorized towards the construction of 66 miles of the company's railway from Little Current to Sudbury; the company to construct a bridge between Little Current and the mainland, with free provision for vehicular and passenger traffic.

By an Act of 1901, section 5, work under the foregoing subsidy was allowed to be carried on in two sections, the first beginning at Victoria Mines and extending to Sudbury and thence to Lake Wahnapitae, not exceeding 33 miles, the second beginning at Little Current and extending to and connecting with the Canadian Pacific Railway at or near Stanley, not exceeding 31 miles.

Under date of May 15, 1902, a contract was entered into with the company under

the above subsidy for a railway from Victoria Mines to Sudbury and thence to Lake Wahnapitae.

During the year 1902-03 there was paid to the company the sum of $32,000.

No further payments were made up to June 30, 1906.

MASSAWIPPI VALLEY RAILWAY COMPANY.

(See Annual Report for 1900-01.)

MIDDLETON AND VICTORIA BEACH RAILWAY COMPANY.

(See Nos. 503, 536 and 566.)

This company was incorporated by the statute of Nova Scotia, 60 Vic., chap. 82 (1897), as 'the Granville and Victoria Beach Railway and Development Company,' with powers to build a line of railway from some point on the Dominion Atlantic Railway at or near Bridgetown, through Granville, to some point at or near Victoria Beach on the Annapolis Basin, with approved branches, &c. This Act was revived by the Act of 1889, chap. 129. It was further revived by the Act of 1901, chap. 160, and extended for six years; the name being changed to the 'Middleton and Victoria Beach Company.'

By the Railway Subsidy Act of Canada, 63-64 Vic., chap. 8, item 28, the grant of a subsidy of $3,200 a mile, with a further subsidy of 50 per cent on cost in excess of $15,000 a mile, not exceeding in all $6,400 a mile, was authorized for 30 miles of a railway from Bridgetown to Victoria Beach, Nova Scotia.

The above company having applied, they were admitted to contract for the work on May 5, 1902, under authority of an order in council of April 1, the railway to be completed by December 1, 1903.

By the Subsidy Act of 1901, chap. 7, item 21, a similar subsidy was authorized to be granted for an extension from Bridgetown to Middleton, not exceeding 11 miles, and the company having applied for it, a contract was made with them, accordingly, on May 5, 1902 under authority of an Order in Council of April 1, the work to be completed by December 1, 1903.

By the Subsidy Act of 1903, chap. 57, item 2, a similar subsidy was authorized for 41 miles of railway from Victoria Beach to Middleton, in lieu of subsidies granted by chap. 8 of 1900, and chap. 7 of 1901.

Application having been made, the company was admitted to contract for this work on December 28, 1903, the time for completion being fixed as by August 1, 1905.

During the past fiscal year, payments have been made to the extent of $50,303.80, making the total payments up to June 30, 1906, $98,092.80.

MIDLAND RAILWAY COMPANY, LIMITED.

(Now part of Dominion Atlantic Railway System.)

(See Annual Report of 1903-04.)

MIDWAY AND VERNON RAILWAY COMPANY.

(See No. 613.)

This company was incorporated by the Act of the province of British Columbia, 1 Edward VII. (1901), chap. 81, with powers for the construction of a line of railway from a point at or near the town of Midway to a point at or near the mouth of Rock Creek; thence in a north-easterly direction to the west fork of Kettle river; thence following the west fork of said river, by the most convenient route via Okanagan Mission Valley, to Vernon.

By the Dominion Act of 1903, chap. 154, the railway works which the company by its said Act of incorporation has been empowered to undertake and operate, are declared to be for the general advantage of Canada.

By the Dominion Subsidy Act of 1903, chap. 57, section 2, item 69, the grant to this company of a subsidy of $3,200 a mile, with an addition of 50 per cent on the cost in excess of $15,000 a mile, limited in all to $6,400 a mile, was authorized for a line of railway from Midway to Vernon, not exceeding 150 miles.

The company having applied for this subsidy, a contract was entered into with them accordingly, on July 28, 1905, under authority of an order in council of the same date.

No payments have been made up to June 30, 1906.

MONTFORT COLONIZATION RAILWAY COMPANY.

(See Annual Report for 1900-01.)

MONTFORT AND GATINEAU COLONIZATION RAILWAY COMPANY.

(Now part of Great Northern Railway Company of Canada.)

(See Annual Report for 1902-03.)

MONTREAL AND CHAMPLAIN JUNCTION RAILWAY COMPANY.

(Now part of Grand Trunk Railway System.)

(See Annual Report for 1892-93.)

MONTREAL AND LAKE MASKINONGÉ RAILWAY COMPANY.

(Leased to Canadian Pacific Railway Company.)

(See Annual Report for 1890-91.)

MONTREAL AND SOREL RAILWAY COMPANY.

(Purchased by Delaware and Hudson Railroad Company.)

(See Annual Report for 1892-93.)

MONTREAL AND WESTERN RAILWAY COMPANY.

(Leased to Canadian Pacific Railway Company.)

(See Annual Report for 1893-94.)

MONTREAL AND OTTAWA RAILWAY COMPANY.

(Now part of Grand Trunk Railway System.)

(*Formerly the* VAUDREUIL AND PRESCOTT RAILWAY COMPANY. *Name changed by 53 Vic., ch. 58.*)

(See Annual Report for 1898-99.)

MONTREAL AND PROVINCE LINE RAILWAY COMPANY

(Operated by Central Vermont Railway.)

(See Annual Report for 1901-02.)

NAPANEE, TAMWORTH AND QUEBEC RAILWAY COMPANY.

(*Name changed to the* KINGSTON, NAPANEE AND WESTERN RAILWAY COMPANY *by the Act 53 Vic., chap. 62.*)

(See Annual Report for 1895-96.)

NAKUSP AND SLOCAN RAILWAY COMPANY.

(Leased to Canadian Pacific Railway Company.)

(See Annual Report for 1894-95.)

NEW BRUNSWICK AND PRINCE EDWARD ISLAND RAILWAY COMPANY.

(See Annual Report for 1888-89.)

NEW BRUNSWICK COAL AND RAILWAY COMPANY.

(See No. 522.)

This company was incorporated by the Act 1 Edward VII. (1901), chap. 77 (New Brunswick), with powers to construct a line of railway from Chipman to Gibson, with the right to build branches thereto and connecting with any railway or railways in New Brunswick.

By the Subsidy Act of 1901, 1 Edward VII., chap. 7, item 7, the grant of a subsidy of $3,200 a mile, with a further subsidy of 50 per cent on average expenditure in excess of $15,00 a mile, the whole subsidy not to exceed $6,400 a mile, was authorized for a line of railway from Chipman station, New Brunswick, to Gibson, in lieu of the subsidies granted by 1897, chap. 4, and 1899, chap. 7, section 2, item 31, not exceeding 45 miles.

The company having applied for this subsidy, a contract was entered into with them, accordingly, on June 30, 1902.

The total paid up to June 30, 1904, amounted to $48,000.

No further payments were made up to June 30, 1906.

NEW GLASGOW IRON, COAL AND RAILWAY COMPANY.

(Now Nova Scotia Steel Company.)

(See Annual Report for 1895-96.)

NICOLA, KAMLOOPS AND SIMALKAMEEN COAL AND RAILWAY COMPANY.

(Leased to Canadian Pacific Railway Company.)

(See No. 570.)

This company was incorporated by the British Columbia Act of 1891, chap. 47, with powers to construct a single or double track line of railway from the eastern extremity of Nicola lake ; thence to the town of Princeton, and thence by way of Simalkameen river in a southerly direction to Osoyoos lake; also from the terminus at Nicola in a northerly direction to the town of Kamloops. Other powers of a general commercial character were granted.

By the Subsidy Act of 1903, chap. 57, section 2, item 26, the grant of a subsidy of $3,200 a mile, with an addition of 50 per cent on average cost in excess of $15,000 a mile, limited in all to $6,400 a mile, was authorized for a railway from a point at or near Spence's Bridge on the Canadian Pacific Railway to Nicola lake, not exceeding 45 miles, being a revote of subsidies granted by chap. 5 of 1892 and chap. 4 of 1894.

The company having applied for this subsidy, a contract was entered into with them for this work on April 27, 1905, under authority of an Order in Council of April 20, 1905.

The sum of $110,592 was paid during the past fiscal year, the total paid up to June 30, 1906.

NORTHERN AND PACIFIC JUNCTION RAILWAY COMPANY.

(Now part of Grand Trunk Railway System.)

(See Annual Report of 1890-91.)

NORTHERN AND WESTERN RAILWAY COMPANY.

(See Annual Report of 1889-90.)

(Also under the head 'Canada Eastern Railway' in Annual Report of 1894-95.)

NOVA SCOTIA CENTRAL RAILWAY COMPANY.

(See Annual Report for 1898-99.)

NOVA SCOTIA EASTERN RAILWAY COMPANY, LIMITED.

(See Nos. 516, 519, 563, 607.)

This company was incorporated by the Act 1, Edward VII. (1901), chap. 130 (Nova Scotia), with powers to construct a line of railway from a point on the Intercolonial Railway at or near New Glasgow, in the county of Pictou, and passing through the counties of Pictou and Guysborough, to the deep waters of Country Harbour, in the county of Guysborough, and from the Cross Roads, Country Harbour, in the said county of Guysborough, to a point at or near the town of Guysborough, and thence to a point on the Strait of Canso, in the said county of Guysborough, and such other lines as may become feeders for the main trunk line above described.

By the Subsidy Act of 1901, 1 Edward VII., chap 7, item 1, the grant of a subsidy of $3,200 a mile, with a further subsidy of 50 per cent on average expenditure in excess of 15,000 a mile, the whole subsidy not to exceed $6,400 a mile, was author-

ized for a line of railway from a point on the Intercolonial Railway, at or near New Glasgow to Country Harbour, and from a point at or near Country Harbour Cross Roads to Guysborough, in lieu of the subsidies granted by 1897, chap. 4, and 1899, chap. 7, sec. 2, item 34, not exceeding 80 miles.

The company having applied for this subsidy, a contract was entered into with them, accordingly, on February 19, 1903.

By the Subsidy Act of 1903, chap. 57, items 19 and 63, the grant of subsidies was authorized, on terms similar to the above, for lines of railway from New Glasgow to Cross Roads, Country Harbour, via Guysborough, to the Straits of Canso, with a branch from Cross Roads down the Country Harbour river to navigable waters, 116 miles ; and from Dartmouth through the Musquodoboit valley to a point at or near Melrose, to connect there with the railway mentioned in item 19.

The company having applied, were admitted to contract under both subsidies, the two agreements being dated April 19, 1904 ; the railways to be completed by December 31, 1906.

No payments have been made up to June 30, 1906.

NOVA SCOTIA SOUTHERN RAILWAY COMPANY.

(See Annual Report for 1902-03.)

ONTARIO AND PACIFIC RAILWAY COMPANY.

(Name changed to OTTAWA AND NEW YORK RAILWAY COMPANY, *by 60-61 Vic., chap. 57, 1897.*

(See Annual Report for 1901-02.)

ONTARIO AND QUEBEC RAILWAY COMPANY.

(Leased to Canadian Pacific Railway Company.)

(See West Ontario Pacific Railway Company, and Annual Report for 1891-92.)

ONTARIO, BELMONT AND NORTHERN RAILWAY COMPANY.

(Operated by Central Ontario Railway Company.)

(See Annual Report for 1896-97.)

ONTARIO AND RAINY RIVER RAILWAY COMPANY.

(Amalgamated with and under the name of the CANADIAN NORTHERN RAILWAY COMPANY *under the Act 62-63 Vic., chap. 80.)*

(See Ontario and Rainy River Railway Company in Annual Report for 1902-03, and under Canadian Northern Railway Company in present report.)

ORFORD MOUNTAIN RAILWAY COMPANY.

(See Annual Reports for 1893-94 and 1894-95.)

(See No. 594.)

The history of this railway was given in the annual report for 1894-95, with a statement of the subsidies paid for the then completed line of railway.

By the Subsidy Act of 1903, chap. 57, section 2, item 50, the grant of a subsidy of $3,200 a mile, with a further subsidy of 50 per cent on average cost in excess of $15,000 a mile, not exceeding in all $6,400 a mile, was authorized for a line of railway from a point on its main line between Lawrenceville and Eastman to Lake Bonella, 5 miles ; from Kingsbury to Windsor Mills, 10 miles ; and from Eastman to the town line between the township of Bolton and the township of Potton, 12 miles—not exceeding in the whole 27 miles.

The company having applied for these subsidies, contracts were entered into with them, accordingly, on March 9, and June 12 and 23, 1905, for the construction of the sections above named, under the authority of orders in council, dated March 25, 1905, for the two first named sections of 5 and 10 miles, and on February 10, 1905, for the last named section.

During the past fiscal year, payments have been made to the extent of $45,764.50, making the total paid to June 30, 1906, including previous subsidies, $168,814.50.

OTTAWA AND NEW YORK RAILWAY COMPANY.

(Purchased by New York Central Railroad Company.)

(See Ontario and Pacific Railway Company.)

OTTAWA, ARNPRIOR AND PARRY SOUND RAILWAY COMPANY.

(Now the CANADA ATLANTIC RAILWAY COMPANY, *by amalgamation, under the Act 62-63 Vic., chap. 81, 1899.*

(See Annual Report for 1898-99.)

OTTAWA AND GATINEAU VALLEY RAILWAY COMPANY.

(Name changed to the OTTAWA AND GATINEAU RAILWAY COMPANY, *by the Act 57-58 Vic., chap. 87, which consolidated and amended Acts relating to the company.)*

(Name further changed to the OTTAWA NORTHERN AND WESTERN RAILWAY COMPANY, *by the Act 1 Edw. VII., chap. 80, 1901.)*

(See Annual Report for 1903-04.)

OTTAWA NORTHERN AND WESTERN RAILWAY COMPANY.

(Leased to Canadian Pacific Railway Company.)

(See Ottawa and Gatineau Valley Railway Company and Pontiac Pacific Junction.) Railway Company.)

OSHAWA RAILWAY AND NAVIGATION COMPANY.

(Name changed to the OSHAWA RAILWAY COMPANY, *by 54-55 Vic., ch. 91.)*

(See Annual Report for 1895-96.)

PARRY SOUND COLONIZATION RAILWAY COMPANY.

(Now part of Grand Trunk Railway System.)

(See Annual Report for 1895-96.)

PEMBROKE SOUTHERN RAILWAY COMPANY.

(See Annual Report for 1899-1900.)

PHILLIPSBURG JUNCTION AND QUARRY COMPANY.

(See Annual Report for 1894-95.)

(*Now the* PHILLIPSBURG RAILWAY AND QUARRY COMPANY. *Name changed by 58 Vic., ch. 65, 1895.*)

(See Annual Report for 1899-1900.)

PORT ARTHUR, DULUTH AND WESTERN RAILWAY COMPANY.

(*Formerly the* THUNDER BAY COLONIZATION RAILWAY COMPANY, *now part of the Canadian Northern Railway System.*)

(See Annual Report for 1892-93.)

PONTIAC AND RENFREW RAILWAY COMPANY.

(See Annual Report for 1899-1900.)

PONTIAC PACIFIC JUNCTION RAILWAY COMPANY.

(Leased to Canadian Pacific Railway Company.)

(See Annual Report for 1900-01.)

QU'APPELLE, LONG LAKE AND SASKATCHEWAN RAILWAY COMPANY.

(Leased to Canadian Pacific Railway Company.)

(See Annual Report for 1890.)

QUEBEC BRIDGE COMPANY.

(*Now the* QUEBEC BRIDGE AND RAILWAY COMPANY,—*name changed by the Act 3 Ed. VII., ch. 177, 1903.*)

(See No. 467 and Acts, chaps. 54 and 177 of 1903.)

This company was incorporated by the Dominion Act, 50-51 Vic., chap. 98 (1887), with powers to construct a railway bridge over the River St. Lawrence near Quebec, and to arrange the same for the use of foot passengers and vehicles, and to construct and operate lines of railway to connect with existing or future lines of railway on each side of the river.

By the Act 60-61 Vic., chap. 69 (1897), the powers of the company were revived, and the time for construction was extended to June 29, 1902.

By the Act 63-64, Vic., chap. 115 (1900), the time for completion was extended to June 14, 1905, and the company were further empowered to arrange for the placing of electric wires on the bridge and connecting railways, and for the passage of electric street railway or tram cars.

By the Railway Subsidy Act, 62-63 Vic., chap. 7 (1899), the grant of a subsidy to this company of $1,000,000 was authorized for a railway bridge over the River St. Lawrence at Chaudière basin, and by the Act of 1900, chap. 8, clause 10, it was made applicable, one-third to the substructure and approaches, and two-thirds to the superstructure.

On November 12, 1900, the company were admitted to contract for this subsidy work.

The site and plans of the bridge were approved by the Railway Committee of the Privy Council, and by an order in council dated May 16, 1898.

The structure is to be a cantilever bridge, composed of two approach spans of 220 feet each, two anchor spans of 500 feet each, and a centre span of 1,800 feet from centre to centre of the piers. The under side of the bridge will give a height of 150 feet above high water. When completed, it will comprise a double track railroad, two lines for electric tramways, and two ordinary roads for vehicles and foot passengers.

Subsidy payments to the extent of $374,353.33 were made up to June 30, 1903. No further payments have been made.

By the Dominion Special Act, 3 Ed. VII., chap. 177, assented to on July 10, 1903, the name of the above company was changed to 'The Quebec Bridge and Railway Company,' with powers to construct lines of railway from the northern terminus of the company's bridge to the city of Quebec, also from the southern terminus of the said bridge to a point at or near the intersection of the Grand Trunk Railway with the Intercolonial Railway at Chaudière Curve, or to some point on those lines near named section to connect with the line of the Canadian Pacific Railway. Other powers of a general commercial character were granted. The powers of the company for the construction of all its authorized works were extended to July 10, 1910.

Negotiations were had having in view entry into agreement for the guarantee by the government of the bonds of the company, and for conveying to the government, at its option, the bridge, railways and property of the company.

Under the authority of an order in council, dated October 19, 1903, and under the same date, the company entered into an agreement with the government, accordingly, subject to ratification by parliament; and by Public Act of the same year, 1903, chap. 54, such agreement, annexed as a schedule to the Act was so ratified and confirmed, subject to the provision that the consent of parliament shall be given before the government exercise the right of taking over the company's property. It was further provided that the Governor in Council should have the right to appoint three directors of the company.

By this agreement the company releases the government from any claim for the unpaid balance of the subsidy of $1,000,000 granted to them, and the government agrees to guarantee the principal and interest of the company's bonds to the extent of $6,678,200, such bonds to be payable in 50 years from the date thereof, bearing interest at 3 per cent per annum, payable half-yearly, and to be a first charge, secured by a mortgage, upon all the company's franchises, tolls, and property of whatsoever kind, the mortgage to secure such securities to be made to a trustee or trustees approved by the Governor in Council and to be subject to like approval, the government

to have the right to take possession of the undertaking and property at any time on one month's notice, paying the shareholders the amount of their stock at par value, not exceeding $265,585.70, with simple interest at 5 per cent, and an addition of 10 per cent on the par value of fully paid-up shares, and assuming the approved obligations of the company for construction, operation and maintenance, according to the terms of the aforesaid bonds and the mortgage securing the same. The date for the completion of the works was fixed as by December 1, 1906.

In pursuance of this authority there was executed, on February 1, 1904, between the Quebec Bridge and Railway Company, the Royal Trust Company (Montreal), and His Majesty, a mortgage trust deed, conveying to the said trust company as trustees all the property and franchises of the bridge company and providing for the issue of bonds to the extent of $6,678,200.

In pursuance of the requirements of the said agreement, the plans, profiles and specifications of the company's proposed railway works have been approved, as follows:—

By order in council of January 27, 1904, for the line from the northern terminus of the bridge to Champlain market, in the city of Quebec, 6·44 miles, and by an order in council of February 2, 1904, from the south terminus of the bridge to a point of junction with the Intercolonial Railway, 12,600 feet.

Under the terms of the company's aforesaid agreements in respect of the bond guarantee, the amount of the issue of bonds is to be fixed by the Chief Engineer's certificate as to the value of the work done and materials delivered, from time to time, on the company's works.

A new agreement was made on February 9, 1906, between the company, the King and the Bank of Montreal for a further advance not exceeding $1,250,000, at 5 per cent, to be paid over to the Royal Trust Company, who are to pay the company 80 per cent (or, with the consent of the bank, a greater percentage) of the par value of the bonds mentioned in the Chief Engineer's certificates.

An agreement, dated March 3, 1906, was made between the Company and the King in order to carry out the above.

Up to June 30, 1904, no certificates were issued.

During the fiscal year 1904-05, certificates were issued showing work done and and materials delivered to the value of $1, 989,162.85, justifying the issue of bonds to the extent of $2,340,186.

During the past fiscal year, 1905-06, certificates were issued showing work done and materials delivered to the value of $1,593,980.13, justifying the issue of bonds to the extent of $1,698,875.

The total value of work done and materials delivered, as certified to up to June 30, 1906, was $3,583,142.98, justifying the issue of bonds to the extent of $4,039,061.

QUEBEC CENTRAL RAILWAY COMPANY.

(See Annual Report of 1895-96.)

QUEBEC AND LAKE ST. JOHN RAILWAY COMPANY.

(See Annual Report of 1895-96.)

(See No. 601.)

The history of this railway was given in the annual report for 1895-96, with a statement of the subsidies paid for the then completed lines of railway.

By the Railway Subsidy Act, 3 Edw. VII., (1903) chap. 57, section 2, item 57, the grant of a subsidy of $3,200 a mile, with an addition of 50 per cent on average cost in excess of $15,000 a mile, limited in all to $6,400 a mile, was authorized for a line or railway from La Tuque on the St. Maurice river to a point on the Lake St. John Railway near the River Jeannotte, not exceeding 35 miles.

The company having applied for this subsidy, a contract was entered into with them, accordingly, on October 12, 1904, under authority of an order in council dated May 5, 1904.

During the past fiscal year, payments have been made to the extent of $86,016, the total paid up to June 30, 1906.

It may be observed that the company had previously been subsidized, under various Acts, for a line of railway from Quebec to Lake St. John, 186 miles, including a bridge across the St. Charles river, and also for the Chicoutimi branch, 72 miles, the aggregate payments for these works amounting to the sum of $1,006,743.50.

QUEBEC, MONTMORENCY AND CHARLEVOIX RAILWAY COMPANY.

(Now the Quebec Railway, Light and Power Company.)

(See Annual Report of 1894-95.)

QUEBEC AND NEW BRUNSWICK RAILWAY COMPANY.

(See No. 517.)

This company was incorporated by the Act (1900), 63-64 Vic., chap. 75, with powers to construct a railway from Connor station on the St. Francis Branch of the Temiscouata Railway (New Brunswick) to a point on the Intercolonial Railway at or near St. Charles Junction, or a point on the Quebec Central Railway at or near St. Anselme, or a point on the Grand Trunk Railway at or near Chaudière Junction (Quebec) a distance of about one hundred and thirty miles.

By the Railway Subsidy Act of 1901, 1 Edward VII., chap. 7, item 2, the grant of a subsidy of $3,200 a mile, with a further subsidy of 50 per cent on an average expenditure in excess of $15,000 a mile, the whole subsidy not to exceed $6,400 a mile, was authorized for a railway from a point at or near St. Charles or at or near Chaudière Junction or a point on the Quebec Central Railway, near St. Anselme, towards the present terminus of the St. Francis Branch of the Temiscouata Railway, not exceeding 45 miles, and for a line of railway from the mouth of the St. Francis river, New Brunswick, westerly towards Chaudière Junction, not exceeding 15 miles, in lieu of the subsidy granted by 1900, chap. 8, sec. 2, item 23; also for a line of railway in extension of the St. Francis Branch of the Temiscouata Railway to the mouth of the St. Francis river, New Brunswick, in lieu of the subsidy granted by 1899, chap. 7, sec. 2, item 43, not exceeding 3 miles; in all not exceeding 63 miles.

The company having applied for this subsidy, a contract was entered into with them, accordingly, on August 25, 1902.

No payments have been made up to June 30, 1906.

RED DEER VALLEY RAILWAY AND COAL COMPANY.

(See Annual Report for 1902-03.)

RESTIGOUCHE AND WESTERN RAILWAY COMPANY.

(Now International Railway Company of New Brunswick, which see.)
(See No. 527.)

This company was incorporated by the Act of the province of New Brunswick, 60 Vic., chap. 82 (1897), with powers to construct a railway from Campbellton, to a point on the River Saint John between Grand Falls and Edmundston.

By the Subsidy Act 60-61 Vic., chap. 4 (1897), there was authorized a subsidy for a railway from Campbellton ,on the Intercolonial Railway, towards Grand Falls, N.B., 20 miles, $3,200 a mile, with an addition of 50 per cent on the cost in excess of $15,000 a mile; the whole not to exceed $6,400 a mile. This was in lieu of a previous subsidy to a specified company.

The Restigouche and Western Railway Company having applied, were admitted to contract for the work on December 24, 1897.

During the fiscal year 1903-04, subsidy to the extent of $30,208 was paid, making the total payments $77,138 up to June 30, 1904.

By the Subsidy Act, 1 Edward VII. (1901), section 2, item 12, the grant of a subsidy of $3,200 a mile, with an addition of 50 per cent on the cost in excess of $15,000 a mile, limited in all to $6,400 a mile, was authorized for its line of railway from Campbellton on the Intercolonial Railway, New Brunswick, towards Grand Falls, in lieu of the subsidy granted by 1897, sec. 2, paragraph 10, not exceeding 20 miles.

The company having applied for this subsidy, a contract was entered into with them, acordingly, on February 17, 1904, under authority of an order in council dated the 12th of that month.

During the past fiscal year, subsidy to the extent of $50,070.07 was paid, under an order in council dated January 22, 1906, authorizing payment of the sum of $50,862, the full amount due upon the completion of this section of railway, leaving a balance of $791.93 for the settlement of certain outstanding claims.

SCHOMBERG AND AURORA RAILWAY COMPANY.

(See Annual Report of 1903-04.)

SHUSWAP AND OKANAGAN RAILWAY COMPANY.

(Leased to Canadian Pacific Railway Company.)
(See Annual Report of 1894-95.)

SOUTH NORFOLK RAILWAY COMPANY.

(Operated by Grand Trunk Railway Company.)

(See Annual Report of 1888-89.)

SOUTH SHORE RAILWAY COMPANY (of New Brunswick).

(See Annual Report of 1896-97.)

SOUTH SHORE RAILWAY COMPANY, QUEBEC.

(See Annual Report of 1904-05.)

ST. CATHARINES AND NIAGARA CENTRAL RAILWAY COMPANY.

(Now Niagara, St. Catharines and Toronto Railway Company, electric.)

(See Annual Report of 1895-96.)

ST. CLAIR FRONTIER TUNNEL COMPANY.

(See Annual Reports of 1890-91 and 1891-92.)

ST. GABRIEL DE BRANDON AND STE. EMÉLIE DE L'ENERGIE RAILWAY COMPANY.

(See Annual Report for 1902-03.)

ST. JOHN VALLEY AND RIVIÈRE DU LOUP RAILWAY COMPANY.

(See Annual Report for 1893-94.)

ST. STEPHEN AND MILLTOWN RAILWAY COMPANY.

(Leased to Canadian Pacific Railway Company.)

(See Annual Reports for 1895-96 and 1900-01.)

STEWIACKE VALLEY AND LANSDOWNE RAILWAY COMPANY.

(Now part of the Dominion Atlantic Railway System.)

(See Annual Report 1895-96.)

ST. LAWRENCE AND ADIRONDACK RAILWAY COMPANY.

(Operated by New York Central Railroad.)

(See Annual Reports for 1893-94 and 1900-01.)

ST. LAWRENCE, LOWER LAURENTIAN AND SAGUENAY RAILWAY COMPANY.

(*Name changed to* LAURENTIAN RAILWAY COMPANY, *by Provincial Act 51-52 Vic., ch. 108.*)

(See Annual Report for 1891-92.)

ST. LOUIS AND RICHIBUCTO RAILWAY COMPANY.

(See Annual Report for 1884-85.)

ST. MARY'S RIVER RAILWAY COMPANY.

(See Nos. 495, 614.)

This company was incorporated by the Dominion Act, 63-64 Vic., chap. 79 (1900), with powers to construct a railway from some point between Lethbridge and Stirling, on the railway of the Alberta Railway Company to some point on the international boundary line, between ranges 24 and 30, west of the 4th meridian, N.W.T., and, with the approval of the Governor in Council, to build branch lines, limited to 15 miles each in length.

By the Dominion Act, 4 Ed. VII., chap. 43 (1904), this company has been authorized to amalgamate with the Alberta Railway and Coal Company and the Canadian North-west Irrigation Company, under the name of the Alberta Railway and Irrigation Company.

By the Subsidy Act of 1903, chap. 57, item 70, the grant of a subsidy of $3,200 a mile, with an addition of 50 per cent on cost in excess of $15,000 a mile, limited in all to $6,400 a mile, was authorized for a line of railway from Spring Coulee, crossing St. Mary's river at Cardston, 16 miles, and from a point on this line to or near the intake of the irrigation canal, about 16 miles, in all, not exceeding 32 miles.

The company having applied, they were admitted to contract, on March 14, 1904, the lines to be completed by August 1, 1905. The gauge of this railway being 3 feet only, the subsidy payable under the said contract is limited to $3,200 per mile.

During the fiscal year 1904-05, subsidy was paid to the extent of $32,134, making the total payments up to June 30, 1905, $148,094.

No further payments have been made up to June 30, 1906.

TÉMISCOUATA RAILWAY COMPANY—RIVIÈRE DU LOUP TO EDMUNDSTON.

(See Annual Report for 1892-93.)

THOUSAND ISLANDS RAILWAY COMPANY.

(See Annual Reports for 1895-96 and 1901-02.)

TILSONBURG, LAKE ERIE AND PACIFIC RAILWAY COMPANY.

(Leased to Canadian Pacific Railway Company.)

(See Annual Report of 1904-05.)

TOBIQUE VALLEY RAILWAY COMPANY.

(Leased to Canadian Pacific Railway Company.)

(See Annual Report for 1893-94.)

TORONTO, GREY AND BRUCE RAILWAY COMPANY.

(Leased to Canadian Pacific Railway Company.)

(See Annual Report for 1887-88.)

TRANS-CANADA RAILWAY COMPANY.

(See No. 540.)

This company was incorporated under the name of 'The Trans-Canadian Railway Company,' by the Act 58-59 Vic., chap. 28 (1895), with powers to construct a railway from a point at or near the city of Quebec; thence westerly and as nearly as practicable in a straight line to a point north of Lake Winnipeg; thence westerly by way of the Yellow Head or other convenient and practicable pass in the Rocky mountains; and thence by the Skeena river to Port Simpson or Port Essington, with the option of adopting any other more feasible route west of the Rocky muntains to reach a point on the Pacific coast between fifty-two and fifty-five degrees north latitude.

Powers were also given for operation of vessels in connection with their railway; for wharf, dock, elevator and warehouse construction, and for production and use of electric power; also for telegraph and telephone lines to any point on James' bay, Hudson bay and Hudson straits.

Additional powers were given by the Act of 1894, chap. 65, for the construction of a branch from the main line at the St. Maurice river, Quebec, thence southerly to the village of Montcalm in the parish of St Liguori, and thence in a direct line to the city of Montreal; the construction of such a branch not to be commenced until after two hundred miles of the main line beginning at the city of Quebec has been constructed and put into operation. This Act also changed the name of the company.

By the Act 2 Edw. VII., chap. 108 (1902), the time for the construction of the railway authorized by the above Acts, was extended to May 15, 1912: their powers of construction were also extended as follows:—To enable the company to 'continue the construction of its main line, which was commenced at Roberval on the Quebec and Lake St. John Railway, from that point in a westerly or north-westerly direction,' and to build 'a branch line from the nearest point on its main line to deep water near the mouth of the Nottaway river,' (which empties into James' bay), and also 'a branch line from Chicoutimi to the mouth of the Saguenay river at or near St. Catharine's bay'; also, with the sanction of the Governor in Council, to enter into an agreement with the Great Northern Railway of Canada, the Quebec and Lake St. John Railway Company, or the Canadian Northern Railway Company, for conveying or leasing its railway, or for an amalgamation with such company.

By the Railway Subsidy Act of 1901, 1 Edw. VII., chap. 71, item 25, the grant of a subsidy of $3,200 a mile, with a further subsidy of 50 per cent on average expenditure in excess of $15,000 a mile, the whole subsidy not to exceed $6,400 a mile, was authorized 'for a line of railway from Roberval, Quebec, westward towards James' bay, not exceeding 60 miles.'

The company having applied for this subsidy, a contract was entered into with them accordingly, on January 19, 1903.

No payments have been made up to June 30, 1906.

UNITED COUNTIES RAILWAY COMPANY.

(Now part of Deleware and Hudson Railroad System.)
(See Annual Report for 1900-01.)

VAUDREUIL AND PRESCOTT RAILWAY COMPANY.

(Leased to Canadian Pacific Railway Company.)

(See Montreal and Ottawa Railway Company.)

WATERLOO JUNCTION RAILWAY COMPANY.

(Operated by Grand Trunk Railway.)

(See Annual Report for 1891-92.)

WESTERN COUNTIES RAILWAY COMPANY.

(Name changed to THE YARMOUTH AND ANNAPOLIS RAILWAY COMPANY, *by 56 Vic., ch 63.)*

(Name further changed to THE DOMINION ATLANTIC RAILWAY COMPANY, *by 57-58 Vic., ch. 69.)*

(See Annual Report for 1894-95.)

WEST ONTARIO PACIFIC RAILWAY COMPANY.

(Leased to Ontario and Quebec Railway Company—C.P.R.)

(See Annual Report of 1890-91.)

WOODSTOCK AND CENTERVILLE RAILWAY COMPANY.

(See Annual Report for 1895-96.)

YARMOUTH AND ANNAPOLIS RAILWAY COMPANY.

(See *Western Counties Railway Company.*)

YORK AND CARLETON RAILWAY COMPANY.

(See Annual Report for 1901-02.)

LAND SUBSIDIES.

A number of companies have been aided by subsidies in land, duly authorized by parliament and granted by the Department of the Interior, to whose report reference must be had for information as to their position.

In the annual report of this department for 1895-96 information was given as to a number of these land subsidized companies.

CANALS.

The total expenditure charged to capital account on the original construction and subsequent enlargement of the several canals of the Dominion up to June 30, 1906, amounts to $90,846,879.60. In addition, an aggregate of $23,548,402.07 has been expended from the consolidated fund, covering repairs, renewals, maintenance and operation of these works, making a total of $114,395,281.67. The total revenue derived

therefrom, including tolls and rental of lands and water powers, amounts to $13,513,583.32.

The canal expenditure for the fiscal year ended on June 30, 1906, was as follows :—

On construction and enlargement a total of $1,552,121.21, charged to capital, being less by $519,472.51 than in the previous year, and further amounts aggregating $1,205,901.11, a reduction of $46,209.92, charged to the consolidated fund, namely, $319,877.14, for maintenance, a reduction of $34,476.43, charged to income ; also $497,694.77 for staff, an increase of $13,870.40, and $388,329.20 for repairs, a decrease of $25,603.89, the last two classes of expenditure being charged to revenue, making the total canal expenditure for the fiscal year $2,758,022.32, a reduction, compared with the previous year of $565,682.43.

The total net amount collected for the fiscal year amounted to $108,067.76, of which $101,717.32 was for hydraulic rents, the balance being from wharfage dues, fines, &c. No tolls are charged on any of the Dominion Canals.*

On July 1, 1905, the balance of rents unpaid was $133,686.47, and the rents accrued during the year amounted to $121,069.30, making a total of $254,755.77. The rents received amounted, as above, to $101,717.32, leaving a balance of rents uncollected on June 30, 1906, amounting to $149,400.67.

Summaries of these expenditures and receipts will be found in the statements furnished by the accountant of the department, printed in the appendices, Part I, of the present report.

The above figures relate to the fiscal year 1905-06, but very voluminous statistics relating to the canal traffic, and various commercial statistics, for the season of navigation of the year 1905 will be found in the 'Canal Statistics,' which are issued as a separate report.

The principal facts of the statistics are, however, summarized as follows:—

The total traffic through the several canals of the Dominion for the season of 1905 amounted to 9,371,744 tons, an increase of 1,115,508 tons compared with the previous year. This includes 5,473,406 tons passing through the Sault Ste. Marie canal, against 5,030,705 tons in 1904. The amount of tolls that would have accrued had they been in force would be $354,447.06.

The following features of the principal canal traffic during the season of 1905 will be of interest:—

On the Welland canal 1,092,050 tons of freight were moved, an increase of 280,679 tons, of which 597,305 tons were agricultural products, an increase of 222,555 tons, and 157,570 tons produce of the forest; of coal 172,642 tons were carried; 859,991 passed eastward, and 232,059 tons westward. 1,075,968 tons were through freight, of which 848,007 tons passed eastward.

Of the through freight, Canadian vessels carried 369,866 tons, an increase of 61,144 tons, and United States vessels 478,141 tons, an increase of 166,785 tons.

The total freight passed eastward and westward through this canal to United States ports was 175,059, a decrease of 77,422 tons compared with the year 1904.

The quantity of grain passed down the Welland and St. Lawrence canals to Montreal was 341,431 tons, an increase of 143,185 tons compared with the previous year; of this, none was transhipped at Ogdensburg, as against 40,641 tons transhipped in 1903. The further quantity of 34,199 tons of grain passed down the St. Lawrence canals, only, to Montreal, making the total 375,630 tons.

On the St. Lawrence canals 1,752,855 tons of freight were moved, an increase of 325,539; of which 827,720 were east bound through-freight, and 252,558 tons west bound through-freight, 744,630 tons were argicultural products, 620,986 tons merchandise, 454,600 tons coal, and 247,222 tons forest products.

One hundred and fifteen cargoes aggregating 180,206 tons, were taken to Montreal in 1905, seventy-two cargoes, aggregating 116,095 tons, in 1904, seventy-four cargoes of grain, aggregating 99,582 tons, were taken down direct to Montreal through the Welland and St. Lawrence canals in 1903, as against thirty-seven aggregating 35,253 tons, in 1902, twenty-two cargoes, aggregating 17,303 tons, in 1901, and fifteen cargoes, aggregating 7,924 tons in 1900.

On the Ottawa river canals the total quantity of freight moved was 371,341 tons, an increase of 35,348, of which 343,255 tons were produce of the forest.

On the Chambly canal 447,069 tons were moved, a decrease of 1,118, of which 304,272 tons were produce of the forest, and 75,816 tons of coal.

On the Rideau canal 59,864 tons were carried, an increase of 4,744; 27,044 tons being the product of the forest, and 11,200 tons of coal.

On the St. Peters canal 81,077 tons were carried, an increase of 7,661, of which 53,658 tons were merchandise, 43,741 tons coal.

On the Murray canal 29,421 tons passed, an increase of 982, and 2,586 tons of this were the product of the forest.

On the Trent Valley canal, 45,231 tons were moved, of which 44,058 tons were the product of the forest.

On the Sault Ste. Marie canal, the total movement of freight was 5,473,406 tons, being an increase of 442,701 tons carried in 5,662 vessels, the number of lockages being 4,031. Of wheat 25,984,339 bushels, and of other grain 6,075,420 bushels were carried; 1,717,441 barrels of flour, 2,919,237 tons of iron ore, 947,224 tons of coal, and 21,220,800 feet, board measure, of lumber; most of these items show an increase. The total traffic at this point ,accommodated by the canals, the American and Canadian, amounted to 44,275,596 tons, an increase of 12,726,975 tons, carried in 21,681 vessels, an increase of 5,566. The total quantity of wheat carried was 68,558,000 bushels, an increase of 18,516,155, and of other grain 39,285,107 bushels, an increase of 8,062,060 Of lumber the total was 954,768,800 feet, board measure, an increase of 41,656,820.*

* Following the course adopted for some years past, the following facts relating to the traffic passing through both the United States and the Canadian canals at Sault Ste. Marie during the season of 1905 have been compiled from the 'Statistical Report of Lake Commerce,' prepared under the direction of Colonel Charles E. L. B. Davis, of the Corps of Engineers, U. S. Army. a report of the highest value and interest as indicating the wonderful growth of the northwestern section of this continent during the past 51 years since the date, 1855, of the opening of the canal, built at a cost of $1,000,000 by the state of Michigan. This was the first ship canal, but a small canal with a lock 38 feet long, and 8 feet 9 inches wide, and with a lift of 9 feet, had been built, in 1797-98, by the Northwest Fur Company on the Canadian side of the

In connection with the question of canal versus railway transport of grain from the west, it may be noted that whereas grain and pease passed down to Montreal through the Welland and St. Lawrence canals to the extent of 341,431 tons, an increase of 143,185 tons, compared with the previous year, the quantity carried to Montreal via the Canadian Pacific and Grand Trunk railways amounted to 148,377 tons, a decrease of 6,248 tons. Over the route from Depot Harbour on Georgian bay, Lake Huron, via the Canada Atlantic Railway to Coteau Landing, at the head of the Soulanges canal, thence by barge to Montreal, in the season of 1903 the total freight carried was 315,779 tons, 109,937 tons were corn and 175,954 wheat; in 1904, the total freight carried was 209,260 tons; 61,675 tons were corn and 137,338 tons were wheat. In 1905 the total freight was 254,378 tons; 54,272 tons were corn and 168,966 tons were wheat.

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river, for the accommodation of batteaux. It, however, was destroyed in 1814 by the American troops.

In 1855 there were 193 passages of vessels, carrying 14,503 tons of freight. Neither wheat nor other grain formed part of this freight. In 1905 there were 21,679 passages of vessels, the total freight carried being 44,270,680 tons, valued at $416,965,484; this quantity comprised 68,321,288 bushels of wheat and 39,226,375 bushels of other grain, all east-bound. This marvellous expansion of commerce has chiefly taken place during the past 17 years; the total freight carried in 1888 amounting to only 6,411,423 tons.

The following are the principal features of the operations of the season of 1905 for both the American and Canadian canals:—

All tonnage is net tons of 2,000 lbs. No tolls are charged.

The season of navigation lasted for 8 months and 10 days, the American canals being opened for 246 days and the Sanadian canal for 255 days.

The depth of water admitted of the passage of vessels drawing 19½ feet.

The total freight passed through these canals aggregated 44,270,680 tons, an increase, compared with the preceding season of 12,253,561 tons, or 31 per cent. 54,204 passengers were carried, an increase of 16,509, or 44 per cent.

The traffic on the United States canals was 88 per cent of the total freight, or 31,121,233 tons, and 52 per cent of the total passengers, or 28,401, or an increase of 46 per cent in freight, compared with the season of 1904, and in passengers of 31 per cent. On the Canadian canal the freight carried was 5,468,490 tons, or 12 per cent of the total, and 25,300 passengers, or 48 per cent of the total number. Compared with the season of 1904, there was an increase of 9 per cent in freight, and 60 per cent in the number of passengers.

The total value of the freight was $416,965,484, an average value of $9.42 per ton. The amount paid for freight transport was $31,420,584.54. The average distance freight was carried was 833·3 miles, and the total of mile-tons, 36,892,797,973.

The total number of registered vessels using the canals was 910, an increase of 24, and there were, in addition, 729 passages by unregistered vessels. The total value of the registered vessels was $78,640,300. United States vessels carried 95 per cent of the total freight, and Canadian 5 per cent.

Of the 910 registered vessels in commission 813 were American, valued at $72,211,300, aggregating 1,302,924 registered tons capacity, and 97 Canadian, valued at $5,429,000, aggregating 68,356 registered tons.

606 were American steamers, valued at $66,746,000, aggregating 6,061,016 registered tons, and 86 Canadian steamers, valued at $5,050,000, of 57,970 tons.

There were 207 registered American sailing vessels, valued at $6,465,300, of 241,908 tons registered, and 11 Canadian valued at $379,000, having an aggregate registered tonnage of 10,386 tons.

Unregistered craft carrying freight to the extent of 66,652 tons made 729 passages. Of this quantity 11,884 tons were carried by American and 54,768 tons by Canadian.

Out of the 21,679 passages of the season, 3,633 were by 89 vessels under 100 tons register, their average being 35 tons.

Twenty-eight new vessels, all steam freighters, were put in commission, ranging from 250 feet to 569 feet in length. The increase in capacity of the vessels continues to be marked. In 1884 there were no boats carrying more than 4,000 tons, and of these only 18 carried between 3,000 and 4,000 tons. In 1905 there were 148 of from 3,000 to 4,000 tons capacity; 44 of from 4,000 to 5,000 tons; 22 of from 5,000 to 6,000 tons; 57 of from 6,000 to 7,000 tons; 60 of from 7,000 to 8,000 tons; 51 of from 8,000 to 9,000 tons; 14 of from 9,000 to 10,000 tons; 10 of from 10,000 to 11,000 tons; 7 of from 11,000 to 12,000 tons; and 3 of 12,000 and over. In 1904 there was only one vessel over 10,000 tons capacity. As to the dimensions of these vessels, there were 184 between 300 and 400 feet in length, 128 between 400 and 500 feet, and 23 between 500 and 600 feet, and of 56 feet beam. The largest single cargo was 12,368 tons, carried by the steamer 'E. H. Garry.' The largest season's work was performed by the steamer 'Augustus B. Wolvin,' whose total amounted to 274,401 tons carried, with a total of 249,038,482 mile-tons.

There were 21,679 passages through the canals, an increase of 5,559, of which 16,019 were through the American and 5,660 through the Canadian canal; they were covered by 13,792 lock-

The quantity of grain carried to tide water on the New York state canals was 216,237 tons, a decrease of 10,630 tons, while the quantity carried by the railways of the state to tide water amounted to 3,164,540 tons, a decrease of 115,967.

Of the total east and west bound freight carried by the state of New York railways (the Erie, the Champlain, the Black river, the Cayuga and Seneca, and the Oswego), and the competing railways (the New York Central and the Erie Railway) respectively (amounting in 1905 to 73,753,141 tons—less by 5,242,646 tons than in 1904), the proportion carried by the canals has fallen steadily from 68·9 per cent in 1859 and 47·0 per cent in 1869, to 6·8 per cent in 1898, 7·2 in 1899, 5·2 in 1900, 5·1 in 1901, 5·5 in 1902, 5·6 in 1903, and 4·6 in 1904, and 4·5 in 1905. These canals carried in 1905, 3,226,896 tons, an increase of 88,349 tons.

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ages, an increase of 3,477 ; of those 9,757 were through the American locks and 4,035 through the Canadian lock.

The principal items of freight, compared with the previous year, were as follows :—

Coal, 6,519,056 tons, of which 984,701 tons were hard, a decrease of 6,527 tons, and 5,524,355 tons soft, an increase of 60,714 tons ; flour, 5,772,719 barrels, an increase of 1,062,181 barrels ; wheat, 68,321,288 bushels, an increase of 18,392,419 bushels ; grain, other than wheat, 39,229,553 bushels, an increase of 6,198,561 bushels (this comprised 637,591 bushels of rye, 12,649,232 bushels of oats, 773,905 bushels of corn, 10,188,256 bushels of barley, and 14,980,569 bushels of flax) ; manufactured and pig iron, 237,696 tons, an increase of 7,711 tons ; salt, 423,122 barrels, an increase of 57,663 barrels ; copper, 106,520 tons, an increase of 3,085 tons ; iron ore, 31,332,637 tons, an increase of 11,696,840 tons ; lumber, 966,806 M. ft. B.M., an increase of 43,526 ; silver ore, 41 tons, a decrease of 1,315 tons ; building stone, 10,899 tons, a decrease of 10,194 tons ; general merchandise, 836,583 tons, an increase of 104,574 tons.

Of the monetary value of the freight carried, coal constituted 4·97 per cent ; cereals, including flour, 28·16 per cent ; iron (ore manufactured and pig), 27·12 per cent ; copper, 7·28 per cent ; lumber, 4·28 per cent ; and all other products, 28·19 per cent.

The east-bound traffic from Lake Superior aggregated 36,778,738 tons. the bulk being raw material, cereals, minerals and lumber, of which quantity 3,316,970 tons went to Lake Michigan ports, 3,307,802 tons in American vessels from American to American ports, 8,418 tons in American vessels, and 750 tons in Canadian vessels from Canadian to American ports. To Lake Huron there were carried 1,182,208 tons, of which 160,492 tons were carried by American vessels from American to American ports, and 50,161 tons to Canadian ports ; 33,232 tons were taken by American vessels from Canadian to American ports. Canadian vessels carried 829,740 tons from Canadian to Canadian ports, 4,899 tons from Canadian to American, and 123,684 tons from American to Canadian ports. To Lake Erie, 31,883,178 tons were taken, of which American vessels carried 31,350,649 tons from American to American ports, 5,676 tons from American to Canadian ports, and 369,925 tons from Canadian to American ports. Canadian vessels carried 16,665 tons from Canadian to Canadian ports, 138,963 tons from Canadian to American, and 1,300 from American to Canadian ports. To Lake Ontario, the total carried was 396,382 tons, of which 33,302 tons were taken in American vessels from American to American ports ; 96,415 tons from American to Canadian ports and none from Canadian to American ports. Canadian vessels carried 242,065 tons from Canadian to Canadian ports, none from Canadian to American, and 24,600 tons from American to Canadian ports.

The west-bound traffic to Lake Superior aggregated 7,491,942 tons. From Lake Michigan, 39,794 tons were carried in American vessels from American to American ports ; 2,857 tons from American to Canadian. There was no further traffic to this lake. From Lake Huron, 93,755 tons were carried in American vessels from American to American ports, 7,377 tons from American to Canadian, and 3,446 tons from Canadian to American ports. Canadian vessels carried 250,878 tons from Canadian to Canadian ports, 16,792 tons from Canadian to American, and 473 tons from American to Canadian ports. From Lake Erie, American vessels carried 6,109,951 tons from American to American ports ; 378,490 tons from American to Canadian ; none from Canadian to American. Canadian vessels carried 12 tons from Canadian to Canadian ports ; 1,120 tons from Canadian to American, and 481,425 from American to Canadian. From Lake Ontario, 23,656 tons were carried by American vessels from American to American ports ; 2,744 tons from American to Canadian, and 2,276 tons from Canadian to American. Canadian vessels carried 63,251 tons from Canadian to Canadian ports ; 4,279 tons from Canadian to American, and 9,366 tons from American to Canadian ports.

The transportation charges per unit, including loading and unloading, on the principal items were as follows :—Coal, $0.33 ; flour, $0.14 ; wheat and other grain, $0.23 per bushel ; manufactured iron, $2 per ton ; pig iron, $1.50 per ton ; copper, $1.25 per ton ; iron ore, $0.68 ; lumber, $2.45 per M. ft. B.M.; silver ore, $1.50 per ton ; and general merchandise, $2 per ton. The total charges aggregated $31,420,584.54, of which those on coal amounted to $2,151,288.48 ; on wheat, $1,571,389.62 ; and on iron ore, $21,306,193.16.

The transportation charges per ton per mile averaged 0·085 of a cent, the average cost per ton being 71 cents.

The enlarged Erie Canal, between Buffalo and Albany, is 350½ miles long; comprises 72 locks, 110 x 18 feet, with a depth of 7 feet of water, accommodating, as a maximum, vessels of 240 tons burden. The original canal was completed in 1836, and the enlargement in 1862. The total cost of construction was $51,609,200.

By means of the enlarged Canadian canal system and the intermediate waterways a minimum depth of fourteen feet of water from Lake Superior to the head of the ocean navigation at Montreal is afforded; the smallest locks being 270 feet in length and 45 feet in width, intended, for the purpose of ordinary traffic, to accommodate vessels 255 feet long and 44 feet beam.*

The through route between Montreal and Port Arthur, on the west shore of Lake Superior, open as a 14-foot navigation, comprises 73 miles of canal, with 48 locks, and 1,150 miles of river and lake waters, or a total of 1,223 miles. From Montreal to Duluth, at the southwest of Lake Superior, the total distance is 1,357 miles, and to Chicago, 1,286 miles. A summary of this route will be found in the Chief Engineer's Report, Part II., and further details of the several works in the pages immediately following. At Port Arthur and at Fort William (about six miles distant), the Canadian Pacific Railway gives communication westwards and eastwards, and the Canadian Northern Railway westwards and with the south. A line of railway is being built from these points by the Grand Trunk Pacific Railway to give communication with the Transcontinental Railway, west.

The approaches to the canals and the channels through the intermediate river reaches are well defined, and are lighted with gas buoys under the control of the Department of Marine and Fisheries, admitting of safe navigation, is in the hands of competent pilots, both by day and night. In the cases of the Sault Ste. Marie, the Welland, the Cornwall and the Soulanges, they are well lighted throughout by electricity, and the Lachine is partially so lighted. The Sault Ste. Marie, the Cornwall and the Soulanges canals are electrically operated. Installations for electrical operation of the Welland canal and the Lachine canal are in progress. The Farran's Point canal is lighted with acetylene gas.

The extensive improvement works being carried on at Port Colborne, the Lake Erie entrance of the Welland canal, comprise the deepening of the approach to the canal to 22 feet, and the construction of two docks, with piers, 200 feet wide, upon which grain elevators will be erected for the transference of grain to vessels adapted to the canal navigation, when required.

The foundations for an elevator of 2,000,000 bushels capacity are completed. It is not, however, proposed to afford, at the outset, bin accommodation for more than 800,000 bushels, a capacity which is deemed sufficient as a test of the new system and pending further information as to the requirements of the grain trade. The plans for construction and equipment are in charge of a special expert in this difficult class of work. Work of rebuilding the west piers is in progress. In addition to the works undertaken by this department, a breakwater, about a mile in length, has been, and another is being constructed across the entrance to the harbour by the Department of

* In exceptional cases this length can, with certain manœuvring, be somewhat increased, being governed, of course, by the form of the vessel. As a matter of fact, there are vessels now using the canals whose length, over all, is 265 feet, and width of beam 37 feet.

Public Works, which will also dredge out the area so contained; thus greatly increasing the accommodation and insuring safety at this important point. The deepening of portions of the canal prism is completed, and certain curves have been reduced, thus facilitating the navigation of the canal.

The work of deepening the approaches of the Sault Ste. Marie canal to 21 feet 5 inches below extreme low water mark is progressing; when finished, a channelway 500 feet wide at the upper entrance and 315 feet wide at the lower entrance will be available. The approaches at the lower entrance are completed to that depth. At the south lower entrance pier, an extension for a distance of 800 feet with a concrete superstructure has been completed. The main purpose of its construction is the cutting off of the strong cross current at this point, which was a source of difficulty and damage to vessels. A similar extension of 800 feet in length with concrete superstructure is under construction at the south upper entrance pier.

The presence of the various dredges and scows in use at the upper entrance for deepening operations has deterred vessels, somewhat, from the adoption of the Canadian route, and the traffic has, consequently, fallen off during the season. This, however, is only a temporary difficulty.

On the Trent canal, the section, 9½ miles, comprising the new hydraulic lift lock at Ashburnham (Peterborough), was formally opened for traffic in June, 1904. A second hydraulic lift lock to overcome a rise and fall of fifty-four feet is under construction for the Balsam-Simcoe Lake division of the canal. The work will be completed during the season of 1906. The other works under contract are in a like position of advancement.

When the present contracts are completed, a six-foot navigation will be afforded from Lake Simcoe to Heely's Falls, a distance of about 160 miles, leaving the portion between Heely's Falls and Lake Ontario and the portion from the head of Lake Simcoe to Georgian bay, Lake Huron, still to be dealt with. The total distance between the Bay of Quinte, Lake Ontario, and Georgian bay is about 192 miles.

The transfer from the Provincial to the Dominion Government of the several works comprised in the back lakes forming the head waters of the canal system has been carried out under a provincial order in council of the 22nd of July, 1905, and a Dominion order of the 16th of February, 1906; the maintenance of the water supply to the canal is thus assured.

During the year, the surveys carried on with a view to determining the most desirable route for those portions of the projected work that still remain to be constructed in order to give communication between Lake Ontario and Georgian bay were completed. The report of the engineer in charge will be found in the appendices. The surveys cover the northerly district between Lake Couchiching and Georgian bay, also the district to the south between Rice lake and Lake Ontario, having in view as the possible terminal point on the latter lake either Trenton, Cobourg, or Port Hope, all three places having urged claims for that distinction.

The final report of the engineer, with plans and estimates, has not yet been received.

Surveys of the east and west branches of the Holland river, and of the Black river from Lake Simcoe to Sutton, with a view to the improvement of their navigation were completed during the year, and the plans are in course of preparation.

The difficult work of forming a channel 3,000 feet long, 300 feet wide, and with 17 feet of water, through the Galops rapids, which, has, for some years past, been carried on, is nearly completed, and the close of the season will probably see it finished. The width at one point has been restricted to 248 feet. In this connection, a massive dam between Adam's Island (Canadian) and Galops island, which is in the territory of the United States ,in order to the removal of a cross current which affected the new channel through the rapids, has been built, and the anticipated good effects upon the current in the channel have resulted from the work, which is practically completed.

In the report of the Chief Engineer, and in the reports of the superintending engineers, will be found full details as to the operation of the various canals, and as to the progress and position of the works of enlargement and construction now being carried on.

GENERAL OBSERVATIONS.

I would repeat here the observations made in my report last year, in which I urged that some provision be made for recognition of long and faithful service in the cases of men whose further employment on the government railways is, by reason of their age, or otherwise, considered undesirable, drawing attention to the general practice of leading railway companies, both in Canada and the United States, in dealing with such matters. I am strongly of opinion that similar treatment of the employees on the government roads would not only be fair to the men, but also in the best interests of the railway, as affording practical proof that duty faithfully performed will bring generous appreciation on the part of those benefiting by it.

The important question of dealing with the railway statistical returns made by the several railway companies, as to which I observed in my last report that it was considered highly desirable that the information to be obtained should be of a more comprehensive character than at present, and supply details similar to those furnished by United States railway companies to the Interstate Commerce Commission, has now been met, as a preliminary step, by the creation of the position of Comptroller of Railway Statistics, and the appointment of Mr. J. L. Payne to that position. The comptroller is adopting the necessary measures to secure from the companies the more complete returns required.

In conclusion, I would repeat here the remark I made last year, namely, that consideration of the work of the department and of its staff, impresses me strongly with the necessity for reorganization, and a numerical increase of its officers. Notwithstanding the great and ever-extending addition to its work, as the natural and very satisfactory issue of the rapid growth of the country during the last quarter of a century, the fixed staff remains practically unchanged. Compared with any large railway company or business, the department is much undermanned, and its staff is out of all proportion to the work that has to be done. The consequence is that many matters are barred from the prompt treatment they should receive, despite the best

efforts of the officials concerned. This condition of affairs to which, I note, my predecessor, in several previous reports has drawn attention, should, in the public interests, be remedied without delay.

It will be universally admitted by all persons of intelligence and experience in practical matters, that the efficient administration of public affairs is of importance, at least as great as in the case of private undertakings, and, as a corollary, that such expenditure as may be requisite to fairly remunerate a sufficient staff of the quality needed for satisfactory government work—an expenditure willingly incurred by private undertakings, the wisdom of their policy being proved by the results obtained—is in the highest degree justifiable and expedient.

I have the honour to be, sir,
Your obedient servant,

M. J. BUTLER,
Deputy Minister of Railways and Canals.

PART I

STATEMENTS OF THE ACCOUNTANT

No. 1.

STATEMENT showing the amount expended by the Department of Railways and Canals, Dominion of Canada, during the Fiscal Year ended June 30, 1906.

Name of Work.	Chargeable to Capital.	Chargeable to Income.	CHARGEABLE TO REVENUE.	
			Staff.	Repairs.
CANALS.	$ cts.	$ cts.	$ cts.	$ cts.
Beauharnois		2,531 24	9,291 91	18,640 71
Carillon		24,179 33	18,232 71	10,924 72
Grenville				
Chambly		26,192 72	26,039 53	25,173 48
Cornwall	37,879 09	20,063 79	71,246 77	31,893 13
Lachine	103,798 28	133,518 77	84,708 78	60,064 84
Murray		293 75	5,183 61	2,840 91
Rideau		5,272 90	41,819 77	54,495 63
Sault Ste. Marie	120,000 00		15,878 11	20,086 15
Soulanges	5,000 22	16,033 79	24,817 37	17,096 33
Ste. Anne's			2,259 16	2,294 86
St. Lawrence—North Channel	83,028 98			
St. Lawrence—Galops Channel	26,506 26			
St. Ours		7,307 39	2,582 95	3,872 75
St. Peter's			3,239 19	253 65
Trent	319,789 49	26,030 36	17,440 68	33,398 85
Welland	715,198 24	28,799 66	107,932 96	78,704 93
Williamsburg—Galops	140,920 65	18,783 00	17,289 42	16,148 66
Williamsburg—General		1,710 00		
Total	1,552,121 21	310,716 70	447,962 92	375,889 60
GENERAL ON CANALS.				
Arbitrations and awards		420 00		
Celebration of ship canals at Sault Ste. Marie		3,731 28		
Dredge vessels—Lachine				4,861 32
" Rideau				7,578 28
Miscellaneous		1,008 11	849 10	
Salaries and contingencies, canal officers			26,417 95	
Sunday labour			22,464 80	
Surveys and inspections		1,409 90		
Quebec Canals—Remarking boundaries		2,591 15		
Total		9,160 44	49,731 85	12,439 60
RAILWAYS.				
Intercolonial	3,765,170 90		7,581,914 36	
National Transcontinental	1,841,269 95			
Prince Edward Island	496,124 89		294,253 16	
Windsor Branch			17,485 97	
Total	6,102,565 74		7,893,653 49	

STATEMENT showing the amount expended by the Department of Railways and Canals, &c.—*Concluded.*

Name of Work.	Chargeable to Capital.	Chargeable to Income.	CHARGEABLE TO REVENUE.	
			Staff.	Repairs.
GENERAL ON RAILWAYS.	$ cts.	$ cts.	$ cts.	$ cts.
Contribution to McGill College		2,500 00		
Railway statistics		55 69		
Railway subsidies		1,637,574 37		
Governor General's car		1,577 40		
Railway Commission		83,092 05		
Subscription to Railway Congress, Brussels		97 33		
Surveys and inspections		11,696 33		
Total		1,736,593 17		
MISCELLANEOUS.				
Cost of litigation		6,001 91		
Extra clerks preparing returns to Parliament		50 00		
Salaries of engineers, draughtsmen, &c		27,115 58		
" extra clerks, &c		3,776 34		
Unforeseen expenses		540 81		
Total		37,484 64		
RECAPITULATION.				
Total on canals	1,552,121 21	319,716 70	447,962 92	375,889 60
" general		9,160 44	49,731 85	12,439 60
Total on canals	1,552,121 21	319,877 14	497,694 77	388,329 20
Grand total canals, $2,758,022.32				
Total on railways	6,102,565 74		7,893,653 49	
" general		1,736,593 17		
Total on railways	6,102,565 74	1,736,593 17	7,893,653 49	
Grand total railways, $15,732,812.40				
Grand total railways and canals, including miscellaneous, $37,484.64	7,654,686 95	2,093,954 95	8,391.348 26	388,329 20

Total amount expended, $18,528.319.36.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

No. 2.

STATEMENT showing the amount expended on Construction, Renewals, Ordinary Repairs and Working Staff of the Canals of the Dominion of Canada, up to June 30, 1906.

ST. PETER'S CANAL.

—	Year ending June 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation	.....	156,523 32	.....	.....	.....
" since " ..	1868	21,519 72	.....	.....	.....
" " " ..	1869	70,719 80	.....	.....	.....
" " " ..	1870	.....	46,193 57	.....	.....
" " " ..	1871	.....	.....	225 36	555 78
" " " ..	1872	.....	.....	280 00	6,122 07
" " " ..	1873	.....	.....	343 32	6,539 58
" " " ..	1874	.....	.....	725 93	1,558 57
" " " ..	1875	20 97	.....	560 00	889 35
" " " ..	1876	11,125 00	.....	641 55	.....
" " " ..	1877	63,330 18	.....	600 00	17 45
" " " ..	1878	26,511 51	.....	600 00	.....
" " " ..	1879	107,337 75	.....	631 50	.....
" " " ..	1880	80,120 54	.....	400 00	.....
" " " ..	1881	69,434 76	.....	959 58	.....
" " " ..	1882	484 00	.....	1,920 54	200 63
" " " ..	1883	.....	.....	2,089 19	232 42
" " " ..	1884	2,471 40	.....	2,601 47	367 85
" " " ..	1885	16,820 15	.....	1,929 11	183 11
" " " ..	1886	2,316 85	.....	2,360 67	297 81
" " " ..	1887	1,087 75	750 00	2,777 13	343 23
" " " ..	1888	.....	.....	3,217 77	1,588 40
" " " ..	1889	.....	500 00	3,085 29	353 38
" " " ..	1890	.....	.....	3,110 15	255 34
" " " ..	1891	972 65	510 53	3,255 30	312 02
" " " ..	1892	14,387 00	30,936 82	3,007 70	1,461 24
" " " ..	1893	811 59	9,987 78	2,938 15	1,856 30
" " "	1894	437 05	3,852 21	2,935 94	1,986 70
" " " ..	1895	868 44	26,222 46	2,499 81	353 55
" " " ..	1896	1,455 21	16,743 64	2,182 04	260 90
" " " ..	1897	.....	.....	2,728 38	1 20
" " " ..	1898	.....	111 70	2,785 25	453 85
" " " ..	1899	.....	.....	2,819 86	456 61
" " " ..	1900	.....	.....	2,833 24	1,483 30
" " " ..	1901	.....	2,311 26	2,730 44	841 63
" " " ..	1902	.....	10,014 43	2,939 81	274 44
" " " ..	1903	.....	.....	2,836 49	764 11
" " " ..	1904	.....	.....	3,126 94	122 45
" " " ..	1905	.....	3,000 10	2,969 90	1,095 90
" " " ..	1906	.....	.....	3,239 19	253 65
		648,755 64	.....	.....	.....
Less—Refunds of previous years.		208 50	.....	.....	.....
Total		*648,547 14	151,134 50	74,887 00	31,482 82

* Expenditure as above. ..... $ 648,547 14
Less expenditure prior to Confederation..... 156,523 32

Agreeing with Public Accounts, 1906, page 4..... $ 492,023 82

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Continued.*

BAIE VERTE CANAL.

	Year ending June 30.	Capital.	Income.
		$ cts.	$ cts.
Government expenditure prior to Confederation			
" since "	1868		
" " "	1869		
" " "	1870		
" " "	1871		17,929 34
" " "	1872		6,399 41
" " "	1873		14,943 83
" " "	1874		4,018 90
" " "	1875		443 00
" " "	1876		110 75
" " "	1877		22 30
" " "	1878		
" " "	1879		
" " "	1880		
" " "	1881		520 00
" " "	1882		
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" " "	1900		
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" " "	1902		
" " "	1903		
" " "	1904		
" " "	1905		
" " "	1906		
Total			44,387 53

S. LEONARD SHANNON,
Accountant

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

SESSIONAL PAPER No. 20

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Continued.*

LACHINE CANAL.

	Year ending June 30.	Chargeable to Capital.		Renewals Chargeable to Income.	Staff.	Repairs.
		$ c.	$ cts.	$ cts.	$ cts.	$ cts.
Expenditure by Imperial Government	....	40,000 00				
Government expenditure prior to Confederation	....	2,547,532 85				
Government expenditure since Confederation	1868			1,852 70	13,742 05	10,431 51
" "	1869	2,000 00			14,209 02	12,085 84
Cost of original construction and enlargement of 1845 to 1848			2,589,532 85			
Expenditure by Dominion Government	1870				15,834 49	13,302 39
" "	1871			12,231 40	17,478 52	15,093 25
" "	1872	36,708 15			16,076 93	12,334 69
" "	1873	7,824 28		35,158 21	23,601 03	34,300 60
" "	1874	158,618 35			25,811 07	22,828 66
" "	1875	197,420 52			28,592 01	30,057 34
" "	1876	327,769 39			33,797 73	29,103 65
" "	1877	1,439,375 73			33,148 86	19,824 33
" "	1878	1,484,619 63			39,062 97	13,646 41
" "	1879	958,053 30			42,338 84	12,400 78
" "	1880	369,566 74			38,950 90	10,223 62
" "	1881	292,165 51			39,027 99	19,888 33
" "	1882	252,821 33		2,978 66	41,158 90	17,116 46
" "	1883	396,496 96		1,859 68	45,554 91	18,199 59
" "	1884	188,266 18			48,624 51	19,683 24
" "	1885	111,215 23			49,004 85	20,199 78
" "	1886	210,509 42			50,969 10	19,199 18
" "	1887	28,772 52		12,981 59	53,113 97	22,567 81
" "	1888	19,414 34		7,996 38	52,229 61	19,999 64
" "	1889	76,032 96		972 71	54,110 67	22,957 71
" "	1890	7,448 03		8,238 46	53,114 34	22,999 38
" "	1891	217 53		16,155 75	50,721 69	36,292 98
" "	1892	87,852 35		27,480 80	52,729 37	67,499 62
" "	1893	445,983 21		50,937 40	53,185 00	51,616 79
" "	1894	64,345 14		17,152 48	60,174 03	40,939 70
" "	1895	189,944 36		32,405 20	56,337 44	25,891 45
" "	1896	184,998 25		8,193 15	58,342 96	24,950 20
" "	1897	282,052 48		14,664 21	57,533 20	25,820 73
" "	1898	216,717 44		819 62	57,282 50	33,391 92
" "	1899	162,351 83		3,103 99	55,990 00	35,776 90
" "	1900	125,009 41		12,210 88	56,791 45	31,988 81
" "	1901	97,305 52		12,072 87	58,364 29	50,005 48
" "	1902	113,328 26		36,249 02	59,435 33	45,853 97
" "	1903	58,426 92		109,893 43	69,762 03	53,054 20
" "	1904	181,487 06		162,705 14	77,233 17	50,660 92
" "	1905	112,460 47		144,996 37	86,209 93	65,202 42
" "	1906	103,798 28		133.518 77	84,708 78	60,064 84
Cost of enlargement			8,989,377 08			
Total			11,578,909 93	866,828 87	1,824,354 44	1,137,455 12

Total expenditure on capital account as above		$11,578,909 93
Less charged to St. Lawrence River Canals, see page 9	$2,950,104 15	
Less expenditure by Imperial Government	40,000 00	
		2,990,104 15
Agreeing with Public Accounts balance sheet, 1906, page 4		$ 8,588,805 78

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Continued.*

BEAUHARNOIS CANAL.

	Year ending June 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation		1,611,424 11			
" since "	1868		63,193 75	9,349 99	6,216 98
" " "	1869		55 00	9,626 99	6,498 57
" " "	1870		27 50	10,117 57	6,384 81
" " "	1871			12,316 53	5,722 36
" " "	1872		27 50	11,792 46	15,733 38
" " "	1873		5,122 50	12,210 73	9,882 06
" " "	1874		26 00	15,392 51	10,990 56
" " "	1875		36 00	14,399 32	12,253 01
" " "	1876			14,465 86	17,170 83
" " "	1877			14,377 63	15,207 36
" " "	1878			14,383 37	9,861 05
" " "	1879			15,015 86	10,370 71
" " "	1880	266 15		15,362 61	8,997 34
" " "	1881			17,659 93	10,770 67
" " "	1882			18,804 53	20,813 86
" " "	1883		6,727 44	18,287 77	15,826 71
" " "	1884		3,277 98	19,107 38	16,232 61
" " "	1885		7,999 79	18,960 40	14,637 70
" " "	1886		8,491 80	19,228 90	14,356 00
" " "	1887		3,633 57	18,867 45	14,999 88
" " "	1888		14,411 97	19,325 05	14,285 98
" " "	1889		10,993 52	20,019 11	14,982 54
" " "	1890			19,847 42	14,999 20
" " "	1891		17,085 68	18,886 86	12,537 39
" " "	1892		1,696 23	20,050 01	14,999 80
" " "	1893			20,348 34	14,107 11
" " "	1894		6,547 72	20,574 53	13,903 46
" " "	1895		27,982 93	20,128 59	12,299 49
" " "	1896			20,725 47	15,050 85
" " "	1897		9,813 15	21,012 64	14,862 98
" " "	1898	25,000 00	5,799 34	20,650 00	16,164 92
" " "	1899		1,000 00	20,613 22	13,463 01
" " "	1900		4,959 22	20,147 59	14,505 30
" " "	1901		483 40	20,118 42	14,199 12
" " "	1902			16,682 52	6,532 33
" " "	1903			8,218 14	10,063 38
" " "	1904			9,236 27	11,936 37
" " "	1905		14,949 83	9,086 68	10,499 99
" " "	1906		2,531 24	9,291 91	18,640 71
Total		*1,636,690 26	216,873 06	634,990 56	500,960 38

*See page 9 for total cost of St Lawrence River and Canals.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

SESSIONAL PAPER No. 20

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Continued.*

ST. LAWRENCE RIVER AND CANALS, SURVEYS, &c.

	Year ending June 30.	CHARGEABLE TO CAPITAL.				Chargeable to Income.
		North Channel.	River Reaches.	Galops Channel.	Total.	
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation					18,442 85	98,378 46
Government expenditure since Confederation	1868					
" "	1869					
" "	1870					
" "	1871					
" "	1872					
" "	1873				33,241 69	
" "	1874				26,541 30	
" "	1875				20,611 36	
" "	1876				50,215 47	
" "	1877				47,377 31	
" "	1878				5,570 46	
" "	1879				9,265 77	
" "	1880				9,214 56	
" "	1881				6,927 96	
" "	1882		6,933 45	22,000 00	28,933 45	
" "	1883		3,574 31	41,300 00	44,874 31	
" "	1884		15,546 03	74,300 00	89,846 03	
" "	1885		13,710 17	101,400 00	115,110 17	
" "	1886		16,251 73	99,800 00	116,051 73	
" "	1887		20,037 31	54,400 00	74,437 31	
" "	1888		16,082 85	40,400 00	56,482 85	
" "	1889		1,293 92	17,200 00	18,493 92	
" "	1890		18,279 91	5,700 00	23,979 91	
" "	1891		35,137 25		35,137 25	
" "	1892		59,779 31		59,779 31	
" "	1893		52,643 39		52,643 39	
" "	1894		13,721 66		13,721 66	
" "	1895		1,223 72	181,552 03	182,775 75	
" "	1896		7,457 05		7,457 05	
" "	1897		12,347 31		12,347 31	
" "	1898	171,336 65	7,491 11	32,710 00	211,537 76	
" "	1899	461,979 50	9,366 47	42,430 00	513,775 97	
" "	1900	225,000 00	72,484 41	50,000 00	347,484 41	
" "	1901	184,790 34	19,389 75	91,211 97	295,392 06	
" "	1902	125,000 00	29,268 64	24,037 85	178,306 49	
" "	1903	126,833 94	16,432 28	25,000 00	168,266 22	
" "	1904	68,595 42	9,634 66	6,450 00	84,680 08	
" "	1905	93,025 89	25,743 51	49,734 70	168,504 10	
" "	1906	83,028 98		26,506 26	109,535 24	
		1,539,590 72	483,830 20	936,132 81	3,236,962 46	98,378 46

ST. LAWRENCE RIVER AND CANALS.

St. Lawrence River and Canals, as above		$ 3,236,962 46
Beauharnois Canal, see page 8		1,636,690 26
Cornwall Canal " 12		7,219,066 67
Williamsburg Canal " 14		10,326,773 86
Lake St. Louis " 10		298,176 11
Soulanges Canal " 26		6,891,174 70
Lachine Canal, from prior to Confederation to June 30, 1875, see page 7		2,950,104 15
Lake St. Francis, see page 11		75,906 71
Agreeing with Public accounts Balance Sheet, 1906, page 4		$32,634,854 92

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Continued.*

LAKE ST. LOUIS.

	Year ending June 30.	Chargeable to Capital.	Chargeable to Revenue.
		$ cts.	$ cts.
Government expenditure prior to Confederation			
" " since "	1868		
" " " "	1869		
" " " "	1870		
" " " "	1871		
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" " " "	1895	4,753 14	
" " " "	1896	49,909 31	
" " " "	1897	73,300 41	
" " " "	1898	64,495 83	
" " " "	1899	57,607 79	
" " " "	1900	11,765 70	
" " " "	1901	12,918 31	
" " " "	1902	6,000 00	
" " " "	1903	9,508 72	
" " " "	1904	7,916 90	
" " " "	1905	†	
" " " "	1906	†	
Total		*298,176 11	

* Included in total cost of St. Lawrence River and Canals, see page 9.
† Transferred to Department of Marine and Fisheries.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

SESSIONAL PAPER No. 20

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Continued.*

LAKE ST. FRANCIS.

	Year ending June 30.	Capital.	Renewals Chargeable to Income.
		$ cts.	$ cts.
Government expenditure since Confederation	1868		
" " " "	1869		
" " " "	1870		
" " " "	1871		
" " " "	1872		
" " " "	1873		
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" " " "	1897		
" " " "	1898	3,420 00	
" " " "	1899	23,110 00	
" " " "	1900	15,431 46	12,288 39
" " " "	1901	15,000 00	8,060 30
" " " "	1902	13,945 25	
" " " "	1903	5,000 00	
" " " "	1904		2,199 52
" " " "	1905	†	
" " " "	1906	†	
Total		*75,906 71	22,548 21

*Included in total cost of St. Lawrence River and Canals, see page 9.
† Transferred to Department of Marine and Fisheries.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

STATEMENT showing the amounts expended on Construction, Renewals, &c.— *Continued.*

CORNWALL CANAL.

—	Year ending June 30.	Chargeable to Capital.		Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation		1,933,152 69				
Government expenditure since Confederation	1868			2,786 00	11,244 47	3,774 18
" "	1869	10,692 04			10,347 91	3,859 14
" "	1870			17,780 05	10,368 16	7,145 42
" "	1871			7 50	11,848 39	8,891 61
" "	1872			10,000 21	10,594 30	8,163 70
" "	1873			1,011 75	13,042 25	12,467 65
" "	1874				13,405 20	7,610 70
" "	1875	1,780 00			13,351 91	7,097 34
Cost of original construction			1,945,624 73			
Expenditure by Dominion Government	1876				13,320 61	6,423 67
" "	1877	49,211 37			13,375 70	6,440 54
" "	1878	145,015 45			13,825 50	4,935 21
" "	1879	143,092 05			13,817 96	4,983 15
" "	1880	109,454 95			14,440 33	9,735 76
" "	1881	53,948 14			15,173 60	5,524 10
" "	1882	44,587 61			15,052 20	6,634 62
" "	1883	21,728 93			18,283 67	8,361 71
" "	1884	22,018 13			18,475 48	9,007 73
" "	1885	62,034 90		16,298 96	15,988 96	12,368 51
" "	1886	57,820 83		6,960 95	15,994 80	11,832 83
" "	1887	46,966 43			17,520 54	12,100 29
" "	1888	67,945 74			16,938 54	13,942 64
" "	1889	163,993 85			17,890 55	58,205 26
" "	1890	365,038 01		2,000 00	17,063 49	12,758 18
" "	1891	599,001 85		1,459 98	16,077 72	9,830 05
" "	1892	398,555 25		2,345 26	15,596 66	9,864 36
" "	1893	352,536 13			15,173 01	9,668 14
" "	1894	404,990 22			15,344 02	7,733 54
" "	1895	450,689 65		21,497 74	15,414 56	13,053 55
" "	1896	448,408 31		2,175 00	15,472 26	25,259 56
" "	1897	438,487 51			15,540 43	16,438 32
" "	1898	133,208 96			15,011 50	15,431 02
" "	1899	37,649 00		15,960 80	16,000 00	14,623 90
" "	1900	169,889 51		18,547 50	18,798 10	13,998 29
" "	1901	62,032 47			17,104 13	13,166 89
" "	1902	90,535 18			17,896 58	15,045 95
" "	1903	77,833 81			70,129 29	19,205 66
" "	1904	113,795 16		1,730 16	45,792 64	20,932 55
" "	1905	104,093 45		8,324 83	71,073 68	28,100 67
" "	1906	37,879 09		20,063 79	71,246 77	31,893 13
Cost of enlargement			5,273,441 94			
Total			*7,219,066 67	148,950 48	783,035 87	506,509 52

* Included in total cost of St. Lawrence River and Canals, see page 9.

S. LEONARD SHANNON,
Accountant

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Continued.*

WILLIAMSBURG CANALS.

	Year ending June 30.	Capital.				Renewals Chargeable to Income.	Staff.	Repairs.
		Farran's Point.	Galops.	Rapide Plat.	Total.			
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation being amount of original construction	....	....	.....	.....	1,326,655 54	.....	....	....
Government expenditure since Confederation	1868	....	.....	.... . .	.....	.....	5,745 97	6,442 41
" " "	1869	.....	.....	.....	.....	.....	5,769 81	5,670 88
" " "	1870	....	.....	.....	.....	....	5,573 13	6,546 16
" " "	1871	....	.. . . .	... .	....	.....	6,382 17	5,308 41
" " "	1872	. ...	.....	....	.. . .	1,077 00	5,542 94	3,230 07
" " "	1873	....	....	..... .	....	.....	6,424 49	7,347 75
" " "	1874	.....	....	....	....	....	6,857 19	7,395 92
" " "	1875	.....	.....	....	....	... .	6,547 62	4,110 29
" " "	1876	.....	.....	.....	....	.....	7,418 39	11,690 98
" " "	1877	....	.....	.....	.....	... ...	7,388 08	10,053 61
" " "	1878	.....	.....	.....	.....	.....	7,430 11	4,449 78
" " "	1879	....	....	... .	.....	....	7,517 20	3,549 71
" " "	1880	.....	.....	....	....	.....	7,590 15	3,999 77
" " "	1881	.. . .	.....	....	.....	....	7,572 35	5,020 73
" " "	1882	....	....	....	.....	.....	7,589 44	7,447 69
" " "	1883	....	.....	.. . .	13 19	.....	7,423 48	7,299 39
" " "	1884	.....	.....	.....	2,473 44	....	7,757 04	7,349 37
" " "	1885	.....	70,764 07	32,473 05	103,237 12	....	7,696 67	8,198 03
" " "	1886	....	78,014 92	71,820 79	149,835 71	.. ..	7,671 54	7,847 05
" " "	1887	... .	32,862 02	82,990 98	115,853 00	. .....	7,635 54	7,904 76
" " "	1888	.....	16,628 95	53,499 34	70,128 29	1,613 67	7,646 79	8,190 13
" " "	1889	....	37,661 15	22,206 11	59,867 26	.....	7,485 28	8,794 61
" " "	1890	.....	126,417 42	12,660 95	139,078 37	. ...	8,954 53	8,191 69
" " "	1891	2,853 76	172,779 88	55,036 96	230,670 60	.....	8,678 25	7,987 40
" " "	1892	....	218,511 17	158,034 15	376,545 32	797 83	9,458 33	8,551 32
" " "	1893	....	154,524 01	217,669 28	372,193 29	3,675 00	8,676 03	8,347 97
" " "	1894	....	223,992 81	274,397 42	498,390 23	....	10,230 09	7,029 95
" " "	1895	....	118,464 53	228,892 70	347,357 23	13,720 36	9,675 09	7,371 37
Carried forward.	.....	2,853 76	1,250,620 93	1,209,681 73	3,786,298 59	20,883 86	210,337 70	195,327 20

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Continued.*

WILLIAMSBURG CANALS—*Continued.*

	Year ending June 30.	Capital.				Renewals Chargeable to Income.	Staff.	Repairs.
		Farran's Point.	Galops.	Rapide Plat.	Total.			
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Brought forward		2,853 76	1,250,620 93	1,209,681 73	3,786,298 59	20,883 86	210,337 70	195,327 20
Government expenditure since Confederation	1896	4,980 00	150,744 16	286,396 96	442,121 12	8,607 04	9,588 51	9,036 00
" " "	1897	.....	262,795 78	205,480 55	468,274 33	3,880 76	8,697 54	8,210 71
" " "	1898	231,321 44	734,492 07	116,072 55	1,081,886 06	.....	10,708 66	8,032 84
" " "	1899	346,956 54	987,186 44	57,869 18	1,392,012 16	7,410 00	9,960 64	10,000 0
" " "	1900	100,534 64	752,799 27	14,298 74	867,632 65	4,137 04	11,092 06	10,897 79
" " "	1901	111,158 39	390,112 78	76,501 57	577,772 74	.....	12,342 32	11,755 09
" " "	1902	42,209 89	421,945 81	137,818 22	601,973 92	.....	14,403 28	13,673 26
" " "	1903	10,266 92	320,354 92	18,483 34	349,105 18	.....	15,246 91	20,092 79
" " "	1904	18,700 00	256,536 30	26,774 27	302,010 57	1,978 85	20,570 17	19,430 05
" " "	1905	8,108 99	292,337 29	8,109 98	{ 8,209 63 / 308,556 26 }	5,573 69	23,399 45	21,492 46
" " "	1906	.....	140,920 65	.....	140,920 65	20,493 00	17,289 42	16,148 66
Total		877,090 57	5,960,844 40	2,157,487 09	*10,326,773 68	72,964 24	363,636 66	344,096 85

*Original construction	$ 1,320,655 54
Cost of enlargement	9,006,118 32
Total	$10,326,773 86

Included in total cost of St. Lawrence River and Canals, page 9.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906

SESSIONAL PAPER No. 20

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Continued.*

WELLAND CANAL.

—	Year ending June 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Imperial Government		222,220 00			
Government expenditure prior to Confederation		7,416,019 83			
" since "	1868	12,097 84		37,679 05	38,852 96
" " "	1869	43,486 36		39,060 61	50,773 03
" " "	1870		22,173 72	40,340 45	65,009 19
" " "	1871		48,569 10	42,383 33	53,381 02
" " "	1872	53,680 32	6,022 44	37,085 37	50,276 90
" " "	1873	82,282 20	47,876 27	45,382 99	66,550 73
" " "	1874	746,420 61		50,966 48	103,666 99
" " "	1875	1,047,119 91		52,595 00	88,539 99
" " "	1876	1,569,478 19	700 00	57,623 31	81,376 12
" " "	1877	2,199,962 61		59,963 47	49,783 93
" " "	1878	2,138,392 99		60,138 59	66,393 53
" " "	1879	1,552,697 41		59,942 23	56,755 57
" " "	1880	1,252,924 75		63,198 10	76,535 25
" " "	1881	1,242,943 37	6,593 19	56,398 04	69,249 53
" " "	1882	603,402 17	13,664 80	74,641 51	84,374 97
" " "	1883	549,433 29	5,979 03	109,207 21	72,707 62
" " "	1884	432,336 21		113,276 87	90,926 97
" " "	1885	463,505 38	6,150 21	112,670 00	91,534 66
" " "	1886	215,380 75	1,359 00	111,660 22	69,507 48
" " "	1887	1,071,073 87	3,828 67	109,371 69	77,440 80
" " "	1888	429,720 94	10,740 86	110,806 01	86,518 97
" " "	1889	225,910 21	43,803 80	113,587 05	77,547 77
" " "	1890	117,633 22	51,648 28	109,202 02	72,686 19
" " "	1891	36,371 03	19,767 73	107,662 63	82,548 30
" " "	1892	29,541 21	9,008 80	104,673 73	73,771 87
" " "	1893	8,259 94	25,103 13	104,926 73	65,016 84
" " "	1894	1,571 78	13,430 20	102,018 80	53,053 71
" " "	1895	3,809 35	24,245 02	90,438 07	48,270 94
" " "	1896	1,677 67	18,768 99	87,988 11	62,542 64
" " "	1897	2,282 35	22,283 06	88,095 20	41,247 81
" " "	1898		34,803 25	84,806 54	59,571 66
" " "	1899		30,099 84	86,110 88	56,270 60
" " "	1900	18,167 29	37,164 84	84,888 36	59,507 64
" " "	1901	224,536 96	87,777 43	86,889 24	72,055 89
" " "	1902	303,997 81	78,905 37	88,048 95	69,279 90
" " "	1903	315,819 49	94,127 21	90,684 05	72,004 59
" " "	1904	555,751 00	31,140 58	91,115 35	85,717 88
" " "	1905	890,457 82	34,559 42	91,928 96	111,418 62
" " "	1906	715,198 24	28,799 66	107,932 96	78,704 93
Total		*26,795,564 37	859,093 90	3,165,388 16	2,731,373 99

*Total expenditure as above	$ 26,795,564 37
Les expenditure by Imperial Government	222,220 00
Agreeing with Public Accounts Balance Sheet, 1906, page 4	$ 26,573,344 37

Original cost of construction, including first enlargement	$ 7,693,824 03
Enlargement, including new Welland Canal	19,101,740 34
Total expenditure as above	$ 26,795,564 37

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Continued.*

ST. ANNE'S LOCK AND CANAL.

— —	Year ending June 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation		134,456 51			
" since " "	1868			778 16	432 47
" " " "	1869			1,062 96	1,873 51
" " " "	1870			1,136 54	1,280 36
" " " "	1871			1,285 84	1,539 02
" " " "	1872		1,939 46	1,106 80	1,393 63
" " " "	1873		540 11	2,199 64	1,264 40
" " " "	1874	12,753 27		2,614 90	7,208 63
" " "	1875	32,627 71		1,859 20	4,506 68
" " " "	1876	24,935 85		1,952 14	4,033 72
" " " "	1877	30,003 08		1,982 65	1,756 93
" " " "	1878	14,618 85		2,057 32	541 95
" " " "	1879	22,113 02		2,202 03	3,259 70
" " " "	1880	3,054 68		2,152 57	1,704 71
" " " "	1881	69,042 76		2,553 02	3,257 92
" " " "	1882	193,158 36		2,611 30	2,343 99
" " " "	1883	172,959 95		2,569 86	3,448 83
" " " "	1884	142,006 25		2,775 32	2,725 49
" " " "	1885	93,679 57		2,618 60	4,042 04
" " " "	1886	129,681 67		2,611 90	5,803 01
" " " "	1887	45,276 08	6,054 10	2,537 41	1,499 96
" " " "	1888	18,910 55	1,372 59	2,505 61	1,380 75
" " " "	1889	24,786 33		2,569 22	1,730 79
" " " "	1890	6,151 14		2,571 04	1,525 51
" " " "	1891		8,173 69	2,505 69	1,503 56
" " " "	1892		25,471 61	2,571 28	1,666 21
" " " "	1893		6,521 88	2,581 08	2,800 03
" " " "	1894		3,497 56	2,640 00	2,799 63
" " " "	1895		3,694 33	2,508 14	3,025 91
" " " "	1896			2,495 54	4,993 89
" " " "	1897			2,357 51	1,688 12
" " " "	1898			1,904 10	1,699 44
" " " "	1899			1,920 12	1,997 96
" " " "	1900			1,840 51	2,679 21
" " " "	1901			1,895 89	3,999 02
" " " "	1902			1,994 52	3,015 97
" " " "	1903		1,984 39	2,072 17	4,684 42
" " " "	1904			2,292 94	2,244 13
" " " "	1905			2,151 01	6,091 44
" " " "	1906			2,259 16	2,294 86
Total		*1,170,215 63	59,249 72	84,303 69	105,737 80

* Included in total cost of Ottawa River Works, see page 19.

Original construction	$ 134,456 51
Enlargement, including new lock	1,035,759 12
	$ 1,170,215 63

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

SESSIONAL PAPER No. 20

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Continued.*

CARILLON AND GRENVILLE CANAL.

—	Year ending June 30.	Capital.	Renewals, Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Imperial Government		*			
Government expenditure prior to Confederation		63,053 64			
" since " "	1868		19,817 22	6,301 88	8,911 28
" " " "	1869			6,549 38	10,157 42
" " " "	1870		4,167 96	6,617 81	9,852 09
" " " "	1871		23,119 37	8,676 90	8,218 24
" " " "	1872	165,257 28		8,324 51	17,235 31
" " " "	1873	133,199 10	3,051 38	10,068 28	8,781 50
" " " "	1874	245,258 38		10,710 88	10,605 82
" " " "	1875	339,864 76		10,378 57	18,520 44
" " " "	1876	326,203 16		10,764 38	11,475 96
" " " "	1877	245,738 04		11,050 27	10,304 06
" " " "	1878	22,676 20		11,401 30	5,082 72
" " " "	1879	243,141 24		11,501 22	7,629 98
" " " "	1880	281,514 27		11,959 14	7,625 54
" " " "	1881	336,707 53		13,059 18	8,076 91
" " " "	1882	433,084 39		14,387 49	7,582 68
" " " "	1883	433,575 10		17,479 58	8,310 02
" " " "	1884	399,267 16		17,393 91	7,918 42
" " " "	1885	157,187 72		19,702 30	10,429 26
" " " "	1886	104,973 24	75 00	20,597 82	9,303 31
" " " "	1887	20,747 11		20,011 36	10,554 41
" " " "	1888	38,996 29		21,531 12	10,036 62
" " " "	1889	298 17		22,098 88	10,135 66
" " " "	1890	17 58	4,526 61	15,896 16	7,582 38
" " " "	1891		4,395 25	21,230 22	10,796 68
" " " "	1892	34,585 64	15,036 48	17,458 69	8,620 15
" " " "	1893	207 00	42,298 74	16,762 71	10,669 28
" " " "	1894	385 55	20,034 94	14,144 98	11,620 09
" " " "	1895		5,963 76	15,453 21	12,303 25
" " " "	1896	3,850 31		13,995 69	12,161 10
" " " "	1897	1,908 44	4,939 20	13,780 29	11,607 95
" " " "	1898	82,663 37	5,082 03	11,697 81	10,993 61
" " " "	1899	39,999 37		11,919 27	11,478 88
" " " "	1900	22,802 27	4,476 50	13,657 06	14,666 71
" " " "	1901	4,930 65	9,331 95	13,342 22	13,416 00
" " " "	1902		16,998 69	13,725 99	19,366 30
" " " "	1903		15,992 52	14,348 17	17,766 28
" " " "	1904		9,150 07	16,224 94	17,262 29
" " " "	1905		8,715 46	15,858 19	19,977 19
" " " "	1906		24,179 33	18,232 71	10,924 72
Total		†4,182,092 96	241,352 46	548,294 47	437,960 51

* Expenditure not given—records relating to same were kept in Ordnance Office at Montreal and were destroyed by fire in 1852.

† Included in total cost of Ottawa River Works, see page 19, cost of enlargement, $4,119,039.32.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Continued.*

CULBUTE LOCK AND DAM.

—	Year ending June 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure since Confederation.	1868				
" " " ..	1869				
" " " ..	1870				
" " " ..	1871				
" " " ..	1872				
" " " ..	1873		835 53		
" " " ..	1874		38,388 99		
" " " ..	1875	63,659 29			
" " " ..	1876	76,842 44			
" " " ..	1877	56,081 87			
" " " ..	1878	5,933 53			
" " " ..	1879	20,694 19			
" " " ..	1880	16,688 20		202 50	259 31
" " " ..	1881	4,721 62		962 85	
" " " ..	1882	29,567 15		790 00	162 33
" " " ..	1883	14,249 60		695 00	288 99
" " " ..	1884	8,151 16		733 50	
" " " ..	1885	19,071 76		730 00	572 75
" " " ..	1886	26,385 27		730 00	2,396 14
" " " ..	1887	7,760 88		730 00	967 33
" " " ..	1888	7,573 99		739 50	730 60
" " " .	1889	17,112 01		1,050 00	116 53
" " " ..	1890	2,818 35		747 83	
" " " ..	1891	2,183 15	9,122 05	745 25	499 91
" " " ..	1892		1,546 25	736 00	
" " " ..	1893		1,420 65	749 00	13 55
" " " ..	1894		2,540 14	730 00	494 43
" " " ..	1895		1,475 26	436 05	434 28
" " " ..	1896				
" " " ..	1897				
" " " ..	1898				100 00
" " " ..	1899				
" " " ..	1900	3,085 00			
" " " ..	1901	197 00			
" " " ..	1902		1,135 00		
" " " ..	1903				
" " " ..	1904		2,204 50		
" " " .	1905		2,255 00		
" " " ..	1906				
Total		*382,776 46	60,923 37	11,507 48	7,036 15

* Included in total cost of Ottawa River Works, see page 19.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

SESSIONAL PAPER No. 20

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Con.*

RIDEAU CANAL.

	Year ending June 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ c.	$ c.	$ c.	$ c.
Imperial Government	...	3,911,701 47	.....	....	.. . .
Government expenditure prior to Confederation	.....	153,062 60	....	.....	.....
" since " "	1868	166 50	7,298 12	18,397 28	16,475 21
" " " "	1869	....	....	19,250 71	13,140 77
" " " "	1870	....	13 16	20,022 37	19,469 33
" " " "	1871	....	11,732 98	22,814 58	18,120 52
" " " "	1872	.....	4,967 50	22,139 48	14,005 32
" " " "	1873	. .....	18,070 97	22,841 51	26,074 49
" " " "	1874	... .	5,793 16	26,815 44	22,957 40
" " " "	1875	9,310 85	.....	26,553 37	19,699 81
" " " "	1876	2,163 96	.....	26,430 77	14,428 25
" " " "	1877	214 11	....	25,959 56	14,198 18
" " " "	1878	....	.....	26,651 51	11,034 22
" " " "	1879	7,703 88	....	26,042 52	7,134 55
" " " "	1880	....	....	26,463 88	11,434 05
" " " "	1881	... .	133 50	26,024 71	8,627 00
" " " "	1882	.....	. .. .	26,915 29	13,860 28
" " " "	1883	..... .	70 65	27 322 81	23,524 84
" " " "	1884	....	4,597 50	26,938 95	19,245 02
" " " "	1885	....	2,098 76	26,971 32	18,189 55
" " " "	1886	....	550 00	27,045 95	35,648 04
" " " "	1887	... .	20,823 96	29,440 46	18,565 34
" " " "	1888	....	18,889 48	33,458 83	25,478 87
" " " "	1889	.....	6,665 22	33,801 77	18,106 36
" " " "	1890	....	21,124 10	34,270 57	18,025 21
" " " "	1891	....	20,967 25	34,641 98	21,537 56
" " " "	1892	.. ..	31,363 23	35,500 82	21,507 16
" " " "	1893	....	24,274 71	35,022 49	18,789 50
" " " "	1894	....	14,485 11	34,943 35	16,939 47
" " " "	1895	....	31,559 48	33,827 08	19,897 32
" " " "	1896	... .	21,452 29	34,052 77	30,196 38
" " " "	1897	....	19,079 11	31,461 55	29,535 94
" " " "	1898	....	13,608 39	30,759 05	26,599 93
" " " "	1899	... .	700 29	30,751 20	28,199 49
" " " "	1900	....	11,780 41	30,623 27	30,237 09
" " " "	1901	.....	....	31,334 40	33,791 17
" " " "	1902	....	8,894 40	32,193 66	33,959 86
" " " "	1903	....	16,235 13	34,595 31	36,424 23
" " " "	1904	....	13,525 04	39,127 96	38,496 78
" " " "	1905	1,565 84	14,513 35	40,838 81	49,790 55
" " " "	1906	....	5,272 90	41,819 77	54,495 63
Total	..	*4,085,889 21	370,540 15	1,154,067 11	897,840 67

* Ottawa River Works.

Ste. Anne's Lock, page 16		$ 1,170,215 63
Carillon and Grenville Canal, page 17		4,182,092 96
Culbute Canal, page 18		382,776 46
Rideau Canal, as above	$ 4,085,889 21	
Less expenditure by Imperial Government	3,911,701 47	
		174,187 74
Total Ottawa River Works (Capital)		$ 5,909,272 79
Add expenditure on slides and booms prior to Confederation	$ 719,247 13	
" " " since "	7,243 60	
" on Chats Canals prior to Confederation	482,950 81	
" in 1881, charged to Miscellaneous, see page 229, part ii, Public Accounts	1,136 84	
Add amount transferred, see page xxxvi, Public Accounts Balance Sheet, 1881	233,555 85	
		1,444,134 23
		$ 7,353,407 02
Less expenditure prior to Confederation, transferred to Income Account	$ 320,618 28	
Less expenditure in 1872, on Carillon and Grenville Canal, as shown in Public Accounts Balance Sheet, page xx, under Miscellaneous	165,257 28	
		485,875 56
Agreeing with Balance Sheet, Public Accounts, 1906, page 4		$ 6,867,531 46

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

S. LEONARD SHANNON,
Accountant.

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Con.*

ST. OURS LOCK.

——	Year ending June 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ c.	$ c.	$ c.	$ c.
Government expenditure prior to Confederation	....	121,537 65	....	....	....
" since " "	1868	....	....	1,532 75	753 74
" " " "	1869	....	....	1,755 15	1,399 18
" " " "	1870	....	....	1,458 09	1,006 22
" " " "	1871	....	....	1,414 48	1,210 98
" " " "	1872	....	....	1,565 80	1,263 19
" " " "	1873	....	....	2,076 50	1,575 10
" " " "	1874	....	....	2,219 13	2,363 42
" " " "	1875	....	....	1,362 22	1,245 69
" " " "	1876	....	....	1,403 92	1,601 71
" " " "	1877	....	....	1,533 40	750 80
" " " "	1878	....	....	1,556 65	283 77
" " " "	1879	....	....	1,581 55	456 07
" " " "	1880	....	....	1,614 01	705 54
" " " "	1881	....	....	1,741 97	1,299 77
" " " "	1882	....	....	2,002 71	1,902 41
" " " "	1883	....	17,230 32	2,361 65	2,188 08
" " " "	1884	....	5,279 17	2,315 37	1,494 99
" " " "	1885	....	4,700 64	2,271 57	3,652 63
" " " "	1886	....	....	2,311 70	4,143 47
" " " "	1887	....	....	2,175 37	5,864 78
" " " "	1888	....	....	2,216 04	2,801 17
" " " "	1889	....	17,964 45	2,421 14	2,002 63
" " " "	1890	....	24,571 96	2,138 40	1,935 44
" " " "	1891	....	21,696 74	2,011 08	4,460 16
" " " "	1892	....	3,585 34	2,168 44	1,944 33
" " " "	1893	....	....	2,136 66	1,994 34
" " " "	1894	....	....	2,216 68	924 55
" " " "	1895	....	....	2,161 63	915 50
" " " "	1896	....	....	2,094 91	1,678 49
" " " "	1897	....	....	2,135 60	707 06
" " " "	1898	....	....	2,049 67	692 04
" " " "	1899	....	....	2,244 12	1 494 93
" " " "	1900	....	1,596 88	2,181 43	2,681 10
" " " "	1901	....	3,610 06	2,128 25	1,681 44
" " " "	1902	....	15,549 27	2,262 39	984 36
" " " "	1903	....	9,344 89	2,288 63	1,671 83
" " " "	1904	....	7,984 41	2,334 67	1,690 61
" " " "	1905	....	14,900 90	2,479 66	1,716 35
" " " "	1906	....	7,307 39	2,582 95	3,872 75
Total ...	....	*121,537 65	155,322 42	78,506 34	71,010 62

* Included in the total cost of Chambly Canal and Richelieu River, *see* page 21.

S. LEONARD SHANNON,
Accountant.

DEPARTMEMT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

SESSIONAL PAPER No. 20

STATEMENT showing the amount expended on Construction, Renewals, &c.—*Con.*

CHAMBLY CANAL.

——	Year ending June 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ c.	$ c.	$ c.	$ c.
Government expenditure prior to Confederation	.....	634,711 76	.....	.....	.....
" since " ..	1868	.....	.....	8,312 90	9,355 70
" " " ..	1869	.....	.....	8,437 22	13,120 97
" " " ..	1870	.....	.....	8,934 41	20,180 73
" " " ..	1871	.....	2,839 85	10,214 71	22,426 33
" " " ..	1872	.....	1,906 40	9,628 50	22,327 99
" " " ..	1873	.....	759 00	10,390 44	11,789 27
" " " ..	1874	.....	2,810 00	11,675 67	16,427 19
" " " .	1875	2,415 00	.....	12,201 99	16,306 91
" " " ..	1876	.....	.....	10,593 14	13,273 56
" " " ..	1877	80 00	.....	10,281 78	10,111 32
" " " ..	1878	.....	.....	10,413 99	6,022 96
" " " ..	1879	.....	.....	11,301 53	8,809 77
" " " ..	1880	.....	.....	11,516 22	12,377 74
" " " ..	1881	.....	.....	13,950 47	20,705 17
" " " ..	1882	.....	31,796 41	16,686 78	16,843 60
" " " ..	1883	.....	21,332 36	15,904 38	15,182 24
" " " ..	1884	.....	41,640 77	18,448 85	12,003 34
" " " ..	1885	.....	21,049 23	18,378 55	13,046 95
" " " ..	1886	.....	14,547 27	19,501 28	11,999 77
" " " ..	1887	.....	17,911 17	19,053 62	20,071 37
" " " ..	1888	.....	65,536 64	20,073 60	11,823 74
" " " ..	1889	.....	51,437 87	19,679 22	19,392 18
" " ..	1890	.....	23,221 48	19,655 38	14,399 93
" " " ..	1891	.....	43,344 41	19,204 76	11,399 93
" " " ..	1892	.....	38,353 99	19,665 22	12,976 48
" " " .	1893	.....	21,127 65	19,310 29	12,451 03
" " " .	1894	.....	8,567 78	19,040 93	11,920 74
" " " ..	1895	.....	6,147 63	19,325 49	11,779 12
" " " ..	1896	.....	3,694 63	19,349 65	11,801 12
" " " ..	1897	.....	12,665 88	18,754 17	13,128 55
" " " .	1898	.....	13,184 68	17,992 90	12,466 51
" " " ..	1899	.....	15,255 42	18,336 50	11,997 51
" " " ..	1900	.....	5,448 88	18,397 58	13,995 00
" " " ..	1901	.....	1,195 09	18,529 48	17,572 35
" " " ..	1902	.....	19,132 80	18,832 25	17,313 02
" " " .	1903	.....	8,977 43	19,286 10	21,745 65
" " " ..	1904	.....	26,701 59	21,544 69	25,656 00
" " " ..	1905	.....	33,066 50	26,970 79	19,896 57
" " " ..	1906	.....	26,192 72	26,039 53	25,173 48
		637,206 76			
Less proceeds of sale of piece of land..	....	150 00			
Total	... ..	*637,056 76	579,845 53	635,814 96	589,271 79

* Chambly Canal and River Richelieu.

Chambly Canal, as above..		$ 637,056 76
St. Ours Lock, see page 20		121,537 65
		$ 758,594 41
Less amount deducted at Confederation, see Public Accounts, 1868, part i, page 9.....		
Government expenditure prior to Confederation,		
Chambly Canal, as above....	$ 634,711 76	
St. Ours Lock, see page 20..	121,537 65	
	$ 756,249 41	
Returned as an asset in Public Accounts, 1868.	433,807 83	
		322,441 58
Agreeing with Public Accounts, 1906, page 4.....		$ 436,152 83

S. LEONARD SHANNON.

Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Con.*

MURRAY CANAL.

	Year ending June 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation					
" since "	1868		400 00		
" " "	1869				
" " "	1870				
" " "	1871				
" " "	1872				
" " "	1873				
" " "	1874				
" " "	1875				
" " "	1876				
" " "	1877				
" " "	1878				
" " "	1879				
" " "	1880				
" " "	1881				
" " "	1882	7,135 63			
" " "	1883	84,071 68			
" " "	1884	118,187 43			
" " "	1885	148,902 66			
" " "	1886	179,704 52			
" " "	1887	142,563 66			
" " "	1888	146,754 37			
" " "	1889	215 326 46			
" " "	1890	106,760 35		494 31	
" " "	1891	61,260 49		5,137 03	173 53
" " "	1892	5,964 22		5,803 48	3,505 15
" " "	1893	30,838 79		5,499 62	5,341 34
" " "	1894			5,667 52	5,295 57
" " "	1895			5,354 97	5,063 49
" " "	1896			5,409 10	5,410 33
" " "	1897			5,526 87	3,966 41
" " "	1898			5,799 94	4,710 23
" " "	1899			5,073 70	3,533 68
" " "	1900			5,613 83	2,777 60
" " "	1901			5,175 74	1,138 15
" " "	1902			5,254 51	6,377 19
" " "	1903	500 00		5,757 00	4,627 70
" " "	1904	750 00	2,521 13	5,291 43	6,075 94
" " "	1905	100 00	740 45	5,346 62	4,452 68
" " "	1906		293 75	5,183 61	2,840 91
Total	....	*1,248,820 26	3,955 33	87,389 28	65,289 90

* Agreeing with Public Accounts Balance Sheet, 1906, page 4.

S. LEONARD SHANNON,
Accountant,

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

SESSIONAL PAPER No. 20

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Con.*

TRENT CANAL.

——	Year ending June 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation	.....	309,371 31	.....	.....	.....
" since " " .	1868	.....	.....	.....	.....
" " " ..	1869	.....	.....	.....	.....
" " " ..	1870	.....	.....	.....	.....
" " " ..	1871	.....	.....	.....	.....
" " " ..	1872	.....	.....	.....	.....
" " " ..	1873	.....	.....	.....	.....
" " " ..	1874	.....	.....	.....	.....
" " " ..	1875	.....	.....	.....	.....
" " " ..	1876	.....	.....	.....	.....
" " " ..	1877	.....	.....	.....	.....
" " " ..	1878	.....	.....	.....	.....
" " " ..	1879	.....	.....	.....	.....
" " " ..	1880	561 50	.....	1,188 92	3,568 89
" " " ..	1881	.....	.....	2,489 93	2,233 50
" " " ..	1882	.....	5,836 51	2,011 92	8,115 50
" " " ..	1883	40,767 16	9,303 66	2,235 50	3,047 42
" " " ..	1884	120,393 91	6,198 57	2,208 64	5,264 35
" " " ..	1885	121,382 84	.....	3,303 87	4,653 50
" " " .	1886	75,103 30	.....	1,639 75	5,917 88
" " " ..	1887	179,541 63	.....	1,938 08	6,008 88
" " " ..	1888	114,879 35	.....	1,770 29	5,151 42
" " " ..	1889	47,592 13	29,677 92	3,242 05	5,935 94
" " " ..	1890	58,644 50	11,522 65	3,450 99	730 55
" " " ..	1891	9,826 49	3,164 81	3,803 66	4,888 98
" " " ..	1892	4,457 28	6,506 97	3,695 85	4,721 85
" " " ..	1893	5,962 47	10,838 90	3,739 86	2,087 17
" " " ..	1894	3,412 32	20,403 93	3,785 47	4,988 59
" " " ..	1895	53,907 70	21,143 41	4,184 18	3,374 49
" " " ..	1896	392,976 08	6,185 75	4,349 34	3,329 97
" " " ..	1897	486,575 70	13,880 37	4,965 39	3,497 90
" " " ..	1898	351,273 31	8,991 54	5,034 60	4,998 80
" " " ..	1899	166,611 49	6,179 79	5,048 72	6,454 49
" " " ..	1900	334,583 01	8,043 39	5,131 52	9,989 26
" " " ..	1901	284,503 89	10,494 82	5,254 51	13,075 89
" " " ..	1902	449,075 45	26,165 93	5,575 52	14,984 88
" " " ..	1903	523,950 74	18,548 58	6,993 25	10,791 15
" " " .	1904	489,038 44	21,228 55	7,237 05	21,179 12
" " " ..	1905	333,261 75	36,853 28	12,071 88	26,056 78
" " " ..	1906	319,789 49	26,030 36	17,440 68	33,398 85
Total	.....	*5,277,443 24	307,199 69	123,791 42	218,446 00

* Total expenditure on Capital Account as above $5,277,443 24

LESS—Expenditure prior to Confederation ..... $ 309,371 31

" Year 1880. ..... 561 50

309,932 81

Agreeing with Public Accounts Balance Sheet, 1906, page 4 ..... $4 967.510 43

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Con.*

TAY CANAL.

——	Yearending June 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure since Confederation.	1868				
" " "	1869				
" " "	1870				
" " "	1871				
" " "	1872				
" " "	1873				
" " "	1874				
" " "	1875				
" " "	1876				
" " "	1877				
" " "	1878				
" " "	1879				
" " "	1880				
" " "	1881				
" " "	1882		748 65		
" " "	1883	4,831 80			
" " "	1884	50,878 12			
" " "	1885	92,473 97			
" " "	1886	65,561 51			
" " "	1887	49,617 92			
" " "	1888	54,166 57			
" " "	1889	89,486 18			
" " "	1890	22,226 23		*	*
" " "	1891	17,114 78		*	*
" " "	1892	29,771 65		*	*
" " "	1893			*	*
" " "	1894			*	*
" " "	1895			*	*
" " "	1896			*	*
" " "	1897	10,720 50		*	*
" " "	1898			*	*
" " "	1899			*	*
" " "	1900	2,750 00		*	*
" " "	1901			*	*
" " "	1902			*	*
" " "	1903			*	*
" " "	1904			*	*
" " "	1905			*	*
" " "	1906			*	*
Total		†489,599 23	748 65	*	*

* Included in Rideau Canal.
† Agreeing with Public Accounts, 1906, page 4.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS.
OTTAWA, September 30, 1906.

SESSIONAL PAPER No. 20

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Con.*

SAULT STE. MARIE CANAL.

——	Year ending June 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure since Confederation	1868				
" " "	1869				
" " "	1870				
" " "	1871				
" " "	1872		949 35		
" " "	1873				
" " "	1874				
" " "	1875				
" " "	1876				
" " "	1877				
" " "	1878				
" " "	1879				
" " "	1880				
" " "	1881				
" " "	1882				
" " "	1883				
" " "	1884				
" " "	1885				
" " "	1886				
" " "	1887				
" " "	1888	8,145 06			
" " "	1889	34,018 95			
" " "	1890	176,568 55			
" " "	1891	325,336 33			
" " "	1892	341,474 31			
" " "	1893	589,801 25			
" " "	1894	1,316,529 29			
" " "	1895	466,151 50		3,432 73	
" " "	1896	189,986 59		16,074 70	2,650 17
" " "	1897	209,561 82		15,381 59	7,671 79
" " "	1898	21,004 56		14,389 92	8,172 09
" " "	1899	63,935 48		13,840 24	6,564 40
" " "	1900	27,157 98		13,901 40	13,219 87
" " "	1901	323,353 93	48 39	13,730 93	10,289 18
" " "	1902	122,505 73		15,920 80	14,839 71
" " "	1903	65,933 43		16,077 22	10,855 70
" " "	1904	32,029 54		14,653 35	9,491 44
" " "	1905	119,181 69		15,681 55	14,776 33
" " "	1906	120,000 00		15,878 11	20,086 15
Total		*4 543,675 99	997 74	168,962 54	118,616 83

* Agreeing with Public Accounts, 1906, page 4.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

STATEMENT showing the amounts expended on Construction, Renewals, &c.—*Con.*

SOULANGES CANAL.

—	Year ending June 30.	Capital.	Renewals Chargeable to Income.	Staff.	Repairs.
		$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation	...	...	...	...	...
" since " ..	1868	...	...	...	...
" " " ..	1869	...	...	...	...
" " " ..	1870	...	...	...	...
" " " ..	1871	...	...	...	...
" " " ..	1872	...	...	...	...
" " " ..	1873	...	...	...	...
" " " ..	1874	...	...	...	...
" " " ..	1875	...	...	...	...
" " " ..	1876	...	...	...	...
" " " ..	1877	...	...	...	...
" " " ..	1878	...	...	...	...
" " " ..	1879	...	...	...	...
" " " ..	1880	...	...	...	...
" " " ..	1881	...	...	...	...
" " " ..	1882	...	...	...	...
" " " ..	1883	...	...	...	...
" " " .	1884	...	...	...	...
" " " ..	1885	...	...	...	...
" " " ..	1886	...	...	...	...
" " " ..	1887	...	...	...	...
" " " ..	1888	...	...	...	...
" " " ..	1889	...	...	...	...
" " " ..	1890	...	...	...	...
" " " ..	1891	...	...	...	...
" " " .	1892	54,235 76	...	...	...
" " " ..	1893	210,336 24	...	...	...
" " " ..	1894	723,380 95	...	...	...
" " " ..	1895	752,016 53	...	...	...
" " " ..	1896	535,939 07	...	...	...
" " " ..	1897	363,126 06	...	...	...
" " " ..	1898	1,016,401 00	...	...	...
" " " ..	1899	1,442,824 22	...	...	...
" " " .	1900	693,806 24	...	6,711 84	5,000 00
" " " ..	1901	462,626 36	115 00	25,154 78	5,888 77
" " " ..	1902	235,021 79	...	22,672 50	2,267 13
" " " ..	1903	248,929 10	...	31,987 06	10,362 23
" " " ..	1904	113,328 45	15,608 69	25,235 25	39,382 01
" " " ..	1905	34,202 71	30,406 25	25,432 49	21,174 84
" " " ..	1906	5,000 22	16,033 79	24,817 37	17,096 33
Total.....	.....	*6,891,174 70	62,163 73	162,011 29	101,171 31

* Included in total cost of St. Lawrence River and Canals, see part i, page 9.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

SESSIONAL PAPER No. 20

STATEMENT showing amount expended on Construction and Enlargement of Canals, to June 30, 1906.

Canal.	Construction.	Enlargement.	Total.
	$ cts.	$ cts.	$ cts.
St. Pierre	648,547 14		648,547 14
Lachine	2,589,532 85	8,989,377 08	11,578,909 93
Beauharnois	1,636,690 26		1,636,690 26
St. Lawrence River and Canals	18,442 85	3,218,519 61	3,236,962 46
Lake St Louis		298,176 11	298,176 11
Lake St. Francis		75,906 71	75,906 71
Cornwall	1,945,624 73	5,273,441 94	7,219,066 67
Williamsburg — Farran's Point		877,090 57	10,326,773 86
Williamsburg — Galops		5,960,844 40	
Williamsburg — Rapide Plat		2,157,487 09	
Williamsburg — Williamsburg	1,320,655 54	10,696 26	
Welland	7,693,824 03	19,101,740 34	26,795,564 37
St. Anne's	134,456 51	1,035,759 12	1,170,215 63
*Carillon and Grenville	63,053 64	4,119,039 32	4,182,092 96
Culbute	382,776 46		382,776 46
Rideau	4,085,889 21		4,085,889 21
St. Ours	121,537 65		121,537 65
Chambly	637,056 76		637,056 76
Murray	1,248,820 26		1,248,820 26
Trent	5,277,443 24		5,277,443 24
Tay	489,599 23		489,599 23
Sault Ste. Marie	4,543,675 99		4,543,675 99
Soulanges	6,891,174 70		6,891,174 70
Total	39,728,801 05	51,118,078 55	90,846,879 60

* Construction by Imperial Government not included, records relating to same were kept in Ordnance Office, Montreal, and were destroyed by fire in 1852.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

*RECAPITULATION—EXPENDITURE on Canals, also showing Revenue received.

——	Year ending June 30.	Capital.	Income.	Staff.	Repairs.	Revenue received.
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation, including Imperial Government		20,593,866 13	98,378 46			
Government expenditure since Confederation	1868	33,784 06	95,347 79	113,084 50	101,646 44	403,879 19
" "	1869	126,898 20	55 00	116,069 76	118,579 31	400,263 32
" "	1870		90,355 96	120,403 02	150,176 70	414,687 02
" "	1871		116,429 54	135,040 81	140,467 52	488,538 76
" "	1872	255,645 75	33,289 27	124,137 09	152,086 25	466,847 52
" "	1873	256,547 27	127,369 55	148,581 18	186,573 13	486,433 26
" "	1874	1,189,591 91	51,037 05	167,194 40	213,613 86	510,755 99
" "	1875	1,714,830 37	479 00	168,401 21	203,226 85	414,979 59
" "	1876	2,388,733 46	810 75	178,411 80	190,578 45	390,337 04
" "	1877	4,131,374 30	22 30	179,661 40	138,448 51	390,857 37
" "	1878	3,843,338 62		187,521 31	122,251 60	373,814 17
" "	1879	3,064,098 61		191,892 44	115,349 99	337,675 13
" "	1880	2,123,366 34		195,039 33	147,167 52	341,598 14
" "	1881	2,075,891 65	7,246 69	197,573 62	154,653 63	361,558 17
" "	1882	1,593,174 09	55,025 03	224,572 61	187,399 02	325,231 54
" "	1883	1,763,001 97	62,503 14	269,415 01	178,617 86	361,604 01
" "	1884	1,577,295 42	60,993 99	280,657 29	192,219 38	372,561 69
" "	1885	1,504,621 47	58,297 59	280,226 20	201,708 47	321,289 47
" "	1886	1,333,324 80	31,984 02	282,323 63	198,251 97	328,977 43
" "	1887	1,783,698 16	65,983 06	285,172 62	198,888 84	321,784 88
" "	1888	1,033,118 34	120,561 59	292,458 76	201,928 93	317,902 04
" "	1889	972,918 43	162,015 49	301,040 23	240,261 36	333,188 90
" "	1890	1,026,364 24	146,853 54	290,516 63	176,089 00	354,816 92
" "	1891	1,318,092 15	165,843 87	294,562 12	204,768 45	349,431 90
" "	1892	1,437,149 30	194,129 61	293,115 58	231,089 54	324,475 24
" "	1893	2,069,573 30	196,185 84	291,588 97	204,759 39	357,089 87
" "	1894	3,027,164 19	109,216 33	294,446 34	179,630 13	387,788 97
" "	1895	2,452,273 65	216,057 58	281,477 04	164,033 71	339,890 49
" "	1896	2,258,778 97	85,820 49	292,121 05	209,321 60	339,538 72
" "	1897	2,348,636 91	101,205 74	287,970 36	178,385 47	384,780 53
" "	1898	3,207,249 79	82,400 55	280,872 44	203,478 86	407,652 81
" "	1899	3,899,877 31	82,205 60	280,628 57	202,312 36	369,044 38
" "	1900	2,639,564 93	120,653 93	292,609 24	227,626 97	322,642 86
" "	1901	2,369,569 89	135,500 57	314,095 04	262,876 07	315,425 69
" "	1902	2,114,689 88	213,044 91	317,838 61	263,768 27	300,413 68
" "	1903	1,823,273 61	275,103 58	390,281 82	294,113 92	230,213 15
" "	1904	1,880,787 20	298,678 23	381,016 82	350,278 54	79,536 51
" "	1905	2,071,593 72	352,855 43	431,499 60	401,742 79	78,009 21
" "	1906	1,552,121 21	310,716 70	447,962 92	375,889 60	108,667 76
Total		90,846,879 60	4,324,657 77	9,901,481 37	7,864,260 26	13,513,583 32

*This does not include expenditure which has been charged to Canals—General—but amounts expended on specified canals.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

HYDRAULIC AND OTHER RENTS.

Balances due July 1.	Accrued during the Year ended June 30.	Totals.	1905-1906.	Abatement.	Deposited to the credit of the Receiver General.	Balances due June 30.	Totals.
$ cts.	$ cts.	$ cts.		$ cts.	$ cts.	$ cts.	$ cts.
49,413 35	36,959 64	86,372 99	Welland canal	1,150 05	23,429 50	61,793 44	86,372 99
2,529 67	1,672 00	4,201 67	Williamsburg canal		898 00	3,303 67	4,201 67
7,230 62	7,697 50	14,928 12	Cornwall canal		7,013 75	7,914 37	14,928 12
13,092 34	4,356 50	17,448 84	Beauharnois canal		6,183 00	11,265 84	17,448 84
35,883 11	54,052 27	89,935 38	Lachine canal	637 50	54,399 73	34,898 15	89,935 38
550 84	186 00	736 84	Chambly canal		162 00	574 84	736 84
3,989 76	4,038 35	8,028 11	Rideau canal	1,840 23	3,451 80	2,736 08	8,028 11
433 95	3,058 04	3,491 99	Trent Valley canal	10 00	2,144 54	1,337 45	3,491 99
25 00	500 00	525 00	Sault Ste. Marie canal		495 00	30 00	525 00
20,533 83	5,495 00	26,028 83	Carillon and Grenville canal		487 00	25,541 83	26,028 83
4 00	38 00	42 00	Sundry canals		37 00	5 00	42 00
	3,016 00	3,016 00	Soulanges canal		3,016 00		3,016 00
133,686 47	121,069 30	254,755 77	Totals	3,637 78	101,717 32	149,400 67	254,755 77

S. LEONARD SHANNON,
Accountant.

Department of Railways and Canals,
Ottawa, September 30, 1906.

REVENUE STATEMENT.

Canal Revenue.				Total Canal Revenue Accrued.	Hydraulic and Other rents, &c.	Total.	Collection Divisions.	Deposited to the Credit of the Receiver General.		Total.	Cost of Staff, Repairs and Statistical Offices chargeable to Revenue.
Tolls.	Wharfage and Storage, Dry Dock and Fines, &c.	Fines.	Other Receipts.					On Account Canal Revenue.	On Account Hydraulic Rents.		
$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.		$ cts.	$ cts.	$ cts.	$ cts.
							Welland Canal				193,599 69
	22 18			22 18	1,318 00	1,340 18	Port Colborne	22 18	1,318 00	1,340 18	2,540 03
	298 08			298 08	22,111 50	22,409 58	Port Dalhousie	298 08	22,111 50	22,409 58	2,200 25
	320 26			320 26	23,429 50	23,749 76	Totals	320 26	23,429 50	23,749 76	198,339 97
							St. Lawrence Canals				360,729 32
	30 00			30 00	3,016 00	3,046 00	Coteau Landing	30 00	3,016 00	3,046 00	1,486 35
					6,183 00	6,183 00	Beauharnois		6,183 00	6,183 00	
	35 00			35 00	7,013 75	7,048 75	Cornwall	35 00	7,013 75	7,048 75	1,680 40
					898 00	898 00	Cardinal		898 00	898 00	1,030 08
	938 19			938 19	270 00	1,208 19	Lachine	938 19	270 00	1,208 19	2,171 99
	4,678 86			4,678 86	54,129 73	58,808 59	Montreal	4,678 86	54,129 73	58,808 59	6,438 82
							Kingston				716 75
	5,682 05			5,682 05	71,510 48	77,192 53	Totals	5,682 05	71,510 48	77,192 53	374,253 71
							Chambly Canal				58,497 61
					50 00	50 00	Chambly		50 00	50 00	619 27
					112 00	112 00	St. John's		112 00	112 00	1,542 81
							St. Ours				626 60
					162 00	162 00	Totals		162 00	162 00	61,286 29
							Ottawa Canals				34,726 65
							Ottawa				
					458 00	458 00	Grenville		458 00	458 00	476 69
					29 00	29 00	Carillon		29 00	29 00	824 18
							St. Anne's Lock				812 48
					487 00	487 00	Totals		487 00	487 00	36,840 00

							Rideau Canal.				97,507 00
	267 80			267 80	3,166 45	3,434 25	Ottawa	267 80	3,166 45	3,434 25	1,477 33
	15 00			15 00	210 00	225 00	Kingston Mills	15 00	210 00	225 00	429 40
	15 00			15 00	75 35	90 35	Smith's Falls	15 00	75 35	90 35	427 33
	297 80			297 80	3,451 80	3,749 60	Totals	279 80	3,451 80	3,749 60	99,841 06
											3,492 84
					32 00	32 00	*St. Peter's Canal.*		32 00	32 00	200 00
							Totals		32 00	32 00	3,692 84
							Murray Canal.				8,514 12
					5 00	5 00	Brighton		5 00	5 00	286 60
							Totals		5 00	5 00	8,800 72
							Trent Valley Canal.				50,839 53
					1 00	1 00	Burleigh		1 00	1 00	
							Bobcaygeon				51 25
							Fenelon Falls				25 00
							Hastings				
	52 00			52 00	2,143 54	2,195 54	Peterborough	52 00	2,143 54	2,195 54	52 74
							Buckhorn				
	52 00			52 00	2,144 54	2,196 54	Totals	52 00	2,144 54	2,196 54	50,968 52
					495 00	495 00	*Sault Ste. Marie Canal.*		495 00	495 00	37,412 76
	6,352 11			6,352 11	101,717 32	108,069 43		6,352 11	101,717 32	108,069 43	871,435 87
							Dredge Vessels				12,439 60
							Inspection				157 06
							Department of Public Printing and Stationery				1,083 34
							General				908 10
							Grand totals	6,352 11	101,717 32	108,069 43	886,023 97
							Less—Refunds			1 67	
							Net Revenue			108,067 76	

S. LEONARD SHANNON,
Accountant.

Department of Railways and Canals,
Ottawa, September 30, 1906.

INTERCOLONIAL RAILWAY.

(Including amounts paid to Nova Scotia Railway and European and North American Railway, N.B.)

—	Year.	Construction.	Income.	Working Expenses including Windsor Branch Ry.	Revenue received, including Windsor Branch Ry.
		$ cts.	$ cts.	$ cts.	$ cts.
Expenditure prior to Confederation		10,766,725 54			
" since "	1868	483,353 65		359,961 08	420,752 58
" " "	1869	282,615 18		387,548 47	455,022 76
" " "	1870	1,729,381 49		445,208 75	471,245 09
" " "	1871	2,916,782 13		442,993 31	565,713 52
" " "	1872	5,131,141 51		595,076 22	622,900 56
" " "	1873	5,201,450 37		1,011,892 60	703,458 26
" " "	1874	3,614,898 81		1,847,175 24	893,430 17
" " "	1875	3,426,099 55		1,532,589 62	861,593 43
" " "	1876	1,108,321 59		1,277,197 79	848,861 46
" " "	1877	1,318,352 19		1,661,673 55	1,154,445 35
" " "	1878	408,816 74		1,811,273 56	1,378,946 78
" " "	1879	226,639 19		2,010,183 22	1,294,099 69
" " "	1880	2,048,014 60		1,607,956 70	1,520,310 45
" " "	1881	608,732 80		1,780,353 53	1,777,856 76
" " "	1882	585,568 79		2,080,592 37	2,100,315 85
" " "	1883	1,616,632 96		2,383,477 20	2,395,034 99
" " "	1884	1,405,377 52		2,366,719 95	2,376,666 19
" " "	1885	1,195,363 08		2,460,229 87	2,392,605 00
" " "	1886	544,958 17		2,568,473 10	2,406,858 88
" " "	1887	823,070 86		2,854,158 91	2,621,337 41
" " "	1888	742,203 09		3,300,481 94	2,937,337 40
" " "	1889	655,228 13		3,174,785 19	2,923,736 46
" " "	1890	365,246 48		3,500,455 80	2,958,243 38
" " "	1891	79,929 34		3,691,273 65	3,007,630 51
" " "	1892	168,101 75		3,458,891 39	2,978,950 82
" " "	1893	228,984 79		3,062,207 45	3,099,815 20
" " "	1894	166,362 43		2,999,317 07	3,020,485 74
" " "	1895	327,034 51		2,964,940 98	2,979,795 59
" " "	1896	259,105 23		3,029,304 08	2,994,201 93
" " "	1897	145,142 00		2,936,789 71	2,906,631 25
" " "	1898	252,367 20	70,000 00	3,275,830 14	3,154,896 49
" " "	1899	1,081,929 94	210,000 00	3,478,559 30	3,775,558 08
" " "	1900	1,796,318 29		4,444,296 25	4,599,423 14
" " "	1901	3,633,836 57		5,477,285 30	5,019,497 76
" " "	1902	4,621,841 05		5,596,939 57	5,720,990 50
" " "	1903	2,254,266 68		6,214,496 38	6,366,884 53
" " "	1904	†1,880,856 60		7,264,263 13	6,392,865 48
" " "	1905	3,937,621 93		8,535,689 91	6,833,561 50
" " "	1906	‡3,765,170 90		7,599,400 33	7,693,282 40
Total		*71,803,873 65	280,000 00	115,423,942 61	106,625,243 34

* Including $296,672.90 charged to 'Consolidated Fund.'

† Expenditure for year $1,894,856 90
Less refunds of previous years 14,000 30

$1,880,856 60

‡ Expenditure for year $3,760,942 95
Add refunded cheque of 1901-02 paid during fiscal year 1905-6. ..... 4,227 95

$3,765,170 90

INTERCOLONIAL RAILWAY—*Concluded.*

Total cost of construction as shown on page 32			$71,803,873 65
Less amounts transferred from Capital to Consolidated Fund as follows :—			
	Nova Scotia Ry.	European and North American Ry.	
1868	$ 16,800 99	$ 11,302 89	
1870	34,403 45	1,749 21	
1871	50,405 69	.....	
1873	106,899 59	75,311 08	
	$ 208,509 72	$ 88,363 18	
		208,509 72	
			296,872 90
			$71,507,000 75
Cape Breton Railway, page 37			3,860,679 14
Oxford and New Glasgow Railway, page 36			1,949,063 21
Eastern Extension Railway, page 34			1,324,042 81
Montreal and European Short Line Railway, page 38			333,942 72
Drummond County Railway, page 42			1,464,000 00
Canada Eastern Railway, page 45			800,000 00
Total capital cost of Intercolonial Railway system			*$81,238,728 63

*Agreeing with Public Accounts, 1905-6, page 4.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

EASTERN EXTENSION RAILWAY.

——	Year.	Capital.	Working Expenses.	Revenue received.
		$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation				
" since "	1868			
" " "	1869			
" " "	1870			
" " "	1871			
" " "	1872			
" " "	1873			
" " "	1874			
" " "	1875			
" " "	1876			
" " "	1877			
" " "	1878			
" " "	1879			
" " "	1880			
" " "	1881			
" " "	1882			
" " "	1883			
" " "	1884	1.284,311 97	10,033 77	30,767 66
" " "	1885	2,055 92	78,273 65	73,050 01
" " "	1886	183 79	94,756 06	66,893 11
" " "	1887		94,254 04	64,107 10
" " "	1888		90,954 73	70,552 20
" " "	1889	34,235 73	90,719 04	72,436 65
" " "	1890		79,102 77	84,658 95
" " "	1891	3,255 40	*	†
" " "	1892		*	†
" " "	1893		*	†
" " "	1894		*	†
" " "	1895		*	†
" " "	1896		*	†
" " "	1897		*	†
" " "	1898		*	†
" " "	1899		*	†
" " "	1900		*	†
" " "	1901		*	†
" " "	1902		*	†
" " "	1903		*	†
" " "	1904		*	†
" " "	1905		*	†
" " "	1906		*	†
Total		‡ 1,324,042 81	538,094 06	462,465 68

* Included in Intercolonial Railway expenses. † Included in Intercolonial Railway revenue.
‡ Included in total cost of Intercolonial Railway system, page 33.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

SESSIONAL PAPER No. 20

CARLETON BRANCH RAILWAY.

	Year.	Capital.	Working Expenses.	Revenue Received.
		$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation				
" since " "	1868			
" " " "	1869			
" " " "	1870			
" " " "	1871			
" " " "	1872			
" " " "	1873			
" " " "	1874			
" " " "	1875			
" " " "	1876			
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" " " "	1881			
" " " "	1882			
" " " "	1883			
" " " "	1884			
" " " "	1885			
" " " "	1886	85,610 69		
" " " "	1887	2,299 62		
" " " "	1888	500 17		
" " " "	1889			
" " " "	1890			
" " " "	1891			
" " " "	1892			
" " " "	1893			
" " " "	1894			
" " " "	1895			
" " " "	1896			
" " " "	1897			
" " " "	1898			
" " " "	1899			
" " " "	1900			
" " " "	1901			
" " " "	1902			
" " " "	1903			
" " " "	1904			
" " " "	1905			
" " " "	1906			
Total		*88,410 48		

* Victoria, chap. 6, transferred the Carleton Branch Railway to the city of St. John, N.B., for the sum of $40,000, which sum was paid in March, 1893, to the Receiver General.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

OXFORD AND NEW GLASGOW.

—	Year.	Capital.	Working Expenses.
		$ cts.	$ cts.
Government expenditure prior to Confederation ...	1868		
" since "	1869		
" " "	1870		
" " "	1871		
" " "	1872		
" " "	1873		
" " "	1874		
" " "	1875		
" " "	1876		
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" " "	1883		
" " "	1884		
" " "	1885		
" " "	1886		
" " "	1887		
" " "	1888	280,932 35	
" " "	1889	840,553 57	
" " "	1890	434,074 60	
" " "	1891	220,886 39	
" " "	1892	48,745 23	
" " "	1893	7,922 80	
" " "	1894	112,382 75	
" " "	1895	*	
" " "	1896	*	
" " "	1897	3,565 52	
" " "	1898		
" " "	1899		
" " "	1900		
" " "	1901		
" " "	1902		
" " "	1903		
" " "	1904		
" " "	1905		
" " "	1906		
Total ...		‡ 1,949,063 21	†

* Included in Intercolonial Railway Capital. † Included in Intercolonial Railway working expenses.
‡ Included in total cost of Intercolonial Railway system, page 33.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

SESSIONAL PAPER No. 20

CAPE BRETON RAILWAY.

	Year.	Capital.	Working Expenses.
		$ cts.	$ cts.
Government expenditure prior to Confederation	1868		
" since "	1869		
" " "	1870		
" " "	1871		
" " "	1872		
" " "	1873		
" " "	1874		
" " "	1875		
" " "	1876		
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" " "	1878		
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" " "	1882		
" " "	1883		
" " "	1884		
" " "	1885		
" " "	1886		
" " "	1887	76,501 89	
" " "	1888	689,450 50	
" " "	1889	1,083,276 60	
" " "	1890	1,170,523 62	
" " "	1891	521,441 62	
" " "	1892	99,936 96	
" " "	1893	59,982 74	
" " "	1894	158,770 61	
" " "	1895	*	
" " "	1896	*	
" " "	1897	405 00	
" " "	1898	389 60	
" " "	1899		
" " "	1900		
" " "	1901		
" " "	1902		
" " "	1903		
" " "	1904		
" " "	1905		
" " "	1906		
Total		§3,860,679 14	†

* Included in Intercolonial Railway capital. † Included in Intercolonial Railway working expenses.
§ Included in total cost of Intercolonial Railway system, see page 33.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

MONTREAL AND EUROPEAN SHORT LINE RAILWAY.

	Year.	Construction.	Working Expenses.
		$ cts.	$ cts.
Government expenditure prior to Confederation	1868		
" since "	1869		
" " "	1870		
" " "	1871		
" " "	1872		
" " "	1873		
" " "	1874		
" " "	1875		
" " "	1876		
" " "	1877		
" " "	1878		
" " "	1879		
" " "	1880		
" " "	1881		
" " "	1882		
" " "	1883		
" " "	1884		
" " "	1885	49,587 45	
" " "	1886	135,214 38	
" " "	1887	24,157 32	
" " "	1888	397 35	
" " "	1889		
" " "	1890		
" " "	1891	124,568 23	
" " "	1892		
" " "	1893		
" " "	1894	17 99	
" " "	1895		
" " "	1896		
" " "	1897		
" " "	1898		
" " "	1899		
" " "	1900		
" " "	1901		
" " "	1902		
" " "	1903		
" " "	1904		
" " "	1905		
" " "	1906		
Total		*333,942 72	

* Included in total cost of Intercolonial Railway system, page 33.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

PRINCE EDWARD ISLAND RAILWAY.

	Year.	Construction.	Working Expenses.	Revenue received.
		$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation....	.....	3,114,735 11	.....	.....
" since "	1874	.....	750 00	.....
" " "	1875	46,086 63	49,344 62	24,493 99
" " "	1876	42,546 10	219,930 43	118,060 96
" " "	1877	200,000 00	228,595 25	130,664 92
" " "	1878	6,551 86	221,599 49	135,899 60
" " "	1879	40,129 05	223,313 12	125,855 91
" " "	1880	16,539 82	164,640 55	113,851 11
" " "	1881	.....	203,122 88	131,131 43
" " "	1882	402 03	228,259 97	137,267 54
" " "	1883	57,186 02	252,808 41	146,170 42
" " "	1884	130,663 38	236,428 13	144,504 12
" " "	1885	76,956 56	211,207 01	158,588 06
" " "	1886	4,668 33	216,744 34	155,584 36
" " "	1887	5,800 00	204,237 45	155,303 37
" " "	1888	.....	229,639 95	158,363 62
" " "	1889	.....	247,559 44	171,369 56
" " "	1890	.....	266,485 85	160,971 78
" " "	1891	.....	257,990 08	174,258 05
" " "	1892	8,300 49	289,706 38	157,442 69
" " "	1893	.....	226,422 17	162,690 42
" " "	1894	.....	226,891 06	158,533 83
" " "	1895	.....	232,905 19	149,654 78
" " "	1896	.....	225,138 56	146,476 54
" " "	1897	.....	240,489 90	153,443 13
" " "	1898	17,541 88	231,418 74	158,950 61
" " "	1899	22,000 00	218,053 01	165,012 03
" " "	1900	53,546 02	220,931 81	174,738 73
" " "	1901	280,173 93	261,766 24	193,883 48
" " "	1902	475,997 94	270,159 97	197,999 93
" " "	1903	829,414 18	259,637 82	217,714 24
" " "	1904	698,877 47	335,695 44	234,390 03
" " "	1905	591,412 65	370,464 44	217,330 61
" " "	1906	496,124 89	294,253 16	257,270 57
Total.....	.....	*7,215,654 34	7,566,590 86	5,087,870 42

* Agrees with Public Accounts Balance Sheet, 1905-1906, page 4.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS.
OTTAWA, September 30, 1906.

CANADIAN PACIFIC RAILWAY.

	Year.	Construction, including subsidy of $25,000,000.	Working Expenses.	Revenue received.
		$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation....	.....	....	.....	... .
" since " " ...	1868	....	....	.. . .
" " " " ...	1869	.....	... .	....
" " " " ...	1870	.....	....	.....
" " " " ...	1871	30,148 32	....	.....
" " " " ...	1872	489,428 16	....	. .....
" " " " ...	1873	561,818 44	.....	..... .
" " " " ...	1874	310,224 88	....	. .....
" " " " ...	1875	1,546,241 67	.....	... .
" " " " ...	1876	3,346,567 06	....	.....
" " " " ...	1877	1,691,149 97	.....	....
" " " " ...	1878	2,228,373 13	....	.....
" " " " ...	1879	2,240,285 47	....	.. ..
" " " " ...	1880	4,044,522 72	78,892 01	104,975 69
" " " " ...	1881	4,968,503 93	236,944 98	291,498 06
" " " " ...	1882	(1) 4,589,075 79	1,786 20	....
" " " " ...	1883	(2) 10,033,800 04	266 09	....
" " " " ...	1884	(3) 11,192,722 02	327 02	.....
" " " " ...	1885	(4) 9,900,281 53	.....	.....
" " " " ...	1886	(5) 3,672,584 81	.....	....
" " " " ...	1887	(6) 915,057 49	... .	.....
" " " " ...	1888	52,098 65	.....	.. ..
" " " " ...	1889	86,716 07	.....	.....
" " " " ...	1890	40,980 54	....	.....
" " " " ...	1891	37,367 00	....	.. . .
" " " " ...	1892	66,211 39	.....	....
" " " " ...	1893	413,836 49	....	.....
" " " " ...	1894	146,539 87	....	. ...
" " " " ...	1895	49,209 77	.. ..	.....
" " " " ...	1896	65,669 49	.....	.....
" " " " ...	1897	14,054 50	....	.. ..
" " " " ...	1898	692 17	....	.....
" " " " ...	1899	8,418 53	....	....
" " " " ...	1900	236 11	.....	....
" " " " ...	1901	8,978 87	.....	.....
" " " " ...	1902	448 70	....	..... .
" " " " ...	1903	.....	....	.....
" " " " ...	1904	33,076 39	....	.....
" " " " ...	1905	....	.....	....
" " " " ...	1906	....	.....	.....
Total.....	....	*62,785,319 97	318,216 30	396,473 75

* Agrees with Public Accounts Balance Sheet, 1905-1906, page 8.

(1) Including.....$ 2,210,000 00 on account subsidy.
(2) " ..... 5,323,076 60 "
(3) " ... . 7,254,208 27 "
(4) " ..... 6,862,201 00 "
(5) " .... 2,890,427 00 "
(6) " ..... 460,087 13 "

†$25,000,000 00

† *See* also Statement No. 3, page 50, for the expenditure.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

SESSIONAL PAPER No. 20

ANNAPOLIS AND DIGBY RAILWAY.

	Year.	Capital.	Income Expenses.
		$ cts.	$ cts.
Government expenditure prior to Confederation			
" since "	1868		
" " "	1869		
" " "	1870		
" " "	1871		
" " "	1872		
" " "	1873		
" " "	1874		
" " "	1875		
" " "	1876		
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" " "	1886		
" " "	1887		
" " "	1888		
" " "	1889	9,847 27	
" " "	1890	381,942 75	
" " "	1891	196,869 36	
" " "	1892	26,129 89	
" " "	1893	2,190 62	
" " "	1894	1,675 36	
" " "	1895	570 55	
" " "	1896		
" " "	1897	41,457 29	
" " "	1898		
" " "	1899		
" " "	1900		
" " "	1901		8,381 82
" " "	1902		
" " "	1903		
" " "	1904		
" " "	1905		
" " "	1906		
Total		*660,683 09	8,381 82

* Of this amount Parliament voted under 52 Vic., chap. 8, the sum of $500,000 as a subsidy to the Western Counties Railway.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

DRUMMOND COUNTY RAILWAY.

	Year.	Construction.	Working Expenses.
		$ cts.	$ cts.
Government expenditure prior to Confederation	1868		
" since "	1869		
" " "	1870		
" " "	1871		
" " "	1872		
" " "	1873		
" " "	1874		
" " "	1875		
" " "	1876		
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" " "	1894		
" " "	1895		
" " "	1896		
" " "	1897		
" " "	1898		
" " "	1899		
" " "	1900	1,459,000 00	
" " "	1901		
" " "	1902	5,000 00	
" " "	1903		
" " "	1904		
" " "	1905		
" " "	1906		
Total		*1,464,000 00	

* Included in total costs of Intercolonial Railway system, page 33.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

SESSIONAL PAPER No. 20

YUKON TERRITORY WORKS.

(Stikine Teslin Railway.)

	Year.	Construction.
		$ cts.
Government expenditure prior to Confederation		
" since "	1868	
" " "	1869	
" " "	1870	
" " "	1871	
" " "	1872	
" " "	1873	
" " "	1874	
" " "	1875	
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" " "	1896	
" " "	1897	
" " "	1898	
" " "	1899	
" " "	1900	
" " "	1901	
" " "	1902	283,323 55
" " "	1903	
" " "	1904	
" " "	1905	
" " "	1906	
Total.		*283,323 55

* Agrees with Public Accounts Balance Sheet, 1905-1906, page 8.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

STATEMENTS OF THE ACCOUNTANT.

National Transcontinental Railway.

	Year.	Construction.
		$ cts.
Government expenditure prior to Confederation		
" since "	1868	
" " "	1869	
" " "	1870	
" " "	1871	
" " "	1872	
" " "	1873	
" " "	1874	
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" " "	1899	
" " "	1900	
" " "	1901	
" " "	1902	
" " "	1903	
" " "	1904	6,249 40
" " "	1905	778,491 28
" " "	1906	1,841,269 95
Total		*2,626,010 63

* Agrees with Public Accounts Balance Sheet, 1905–1906, page 8.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

SESSIONAL PAPER No. 20

STATEMENTS OF THE ACCOUNTANT.

Canada Eastern Railway.

	Year.	Construction.
		$ cts.
Government expenditure prior to Confederation		
" since " *	1868	
" " "	1869	
" " "	1870	
" " "	1871	
" " "	1872	
" " "	1873	
" " "	1874	
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" " "	1898	
" " "	1899	
" " "	1900	
" " "	1901	
" " "	1902	
" " "	1903	
" " "	1904	
" " "	1905	800,000 00
" " "	1906	
Total		* 800,000 00

* Included in total cost of Intercolonial Railway System, page 33.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

STATEMENT showing amount expended on Capital Account on Railways

Railways.	—	—
	$ cts.	$ cts.
Intercolonial	71,507,000 75	
Cape Breton	3,860,679 14	
Oxford and New Glasgow	1,949,063 21	
Eastern Extension	1,324,042 81	
Drummond County	1,461,000 00	
Montreal and European Short Line	333,942 72	
Canada Eastern	800,000 00	
		81,238,728 63
Carleton Branch		48,410 48
Prince Edward Island		7,215,654 34
Canadian Pacific		62,785,319 97
Annapolis and Digby		660,683 09
Yukon Territory Works (Stikine-Teslin Ry.)		283,323 55
National Transcontinental		2,626,010 63
Governor General's Car		17,955 93
Total		154,876,086 62

Memo. re Recapitulation—Railways.

Total cost as per statement above	154,876,086 62
Add amounts transferred from Capital to Consolidated Fund, Intercolonial Railway, see statement, page 33	296,872 90
Agreeing with total of construction, as per statement, page 47	155,172,959 52

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

SESSIONAL PAPER No. 20

RECAPITULATION—GOVERNMENT RAILWAYS.

——	Year.	Construction.	Working Expenses.	Revenue.
		$ cts.	$ cts.	$ cts.
Government expenditure prior to Confederation	.....	13,881,460 65	.....	.....
" since "	1868	483,353 65	359,961 08	420,752 58
" " "	1869	282,615 18	387,548 47	455,022 76
" " "	1870	1,729,381 49	445,208 75	471,245 09
" " "	1871	2,946,930 45	442,993 31	565,713 52
" " "	1872	5,620,569 67	595,076 22	622,900 56
" " "	1873	5,763,268 81	1,011,892 60	703,458 26
" " "	1874	3,925,123 69	1,847,925 24	893,430 17
" " "	1875	5,018,427 85	1,581,934 24	886,087 42
" " "	1876	4,497,434 75	1,497,128 22	966,922 42
" " "	1877	3,209,502 16	1,890,268 80	1,285,110 27
" " "	1878	2,643,741 73	2,032,873 05	1,514,846 38
" " "	1879	2,507,053 71	2,233,496 34	1,419,955 60
" " "	1880	6,109,077 14	1,851,489 26	1,739,137 25
" " "	1881	5,577,236 73	2,220,421 39	2,200,486 25
" " "	1882	5,175,046 61	2,310,638 54	2,237,583 39
" " "	1883	11,707,619 02	2,636,551 70	2,541,205 41
" " "	1884	14,013,074 89	2,613,508 87	2,551,937 97
" " "	1885	11,224,244 54	2,749,710 53	2,624,243 07
" " "	1886	4,443,220 17	2,819,973 50	2,628,336 35
" " "	1887	1,846,887 18	3,152,650 40	2,840,747 88
" " "	1888	1,765,582 11	3,621,076 62	3,166,253 22
" " "	1889	2,709,857 37	3,513,063 67	3,167,542 67
" " "	1890	2,392,767 99	3,846,044 42	3,203,874 11
" " "	1891	1,184,317 34	3,949,263 73	3,181,888 56
" " "	1892	417,425 73	3,748,597 77	3,136,393 51
" " "	1893	712,917 44	3,288,629 62	3,262,505 62
" " "	1894	585,749 01	3,226,208 13	3,179,019 57
" " "	1895	376,814 83	3,197,846 17	3,129,450 37
" " "	1896	324,774 72	3,254,442 64	3,140,678 47
" " "	1897	204,624 31	3,195,959 58	3,060,074 38
" " "	1898	270,990 85	3,507,248 88	3,313,847 10
" " "	1899	1,112,348 47	3,696,612 31	3,940,570 11
" " "	1900	3,309,130 42	4,665,228 06	4,774,161 87
" " "	1901	3,922,989 37	5,739,051 54	5,213,381 24
" " "	1902	5,386,611 24	5,861,099 54	5,918,990 43
" " "	1903	3,083,680 86	6,474,134 20	6,584,598 77
" " "	1904	2,619,059 86	7,599,958 57	6,627,255 51
" " "	1905	6,125,481 79	8,906,154 35	7,050,892 11
" " "	1906	6,102,565 74	7,893,653 49	7,950,552 97
Total	.....	*155,212,959 52	123,865,523 80	112,571,053 19

* Total amount paid on construction..... $155,212,959 52
Less amount received from the City of St. John, N.B., as purchase of the Carleton Branch Railway.... 40,000 00

Total cost of construction..... †$155,172,959 52

† Agreeing with amount expended on Capital, see page 46.

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

STATEMENT showing Miscellaneous Expenditure, yearly, by the Department of Railways and Canals.

Year ending June 30.	CHARGEABLE TO INCOME.			CHARGEABLE TO REVENUE.			Total, Yearly Expenditure
	Canals.	Railways.	General.	Canals.	Railways.	General.	
	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
1868			6,305 66	12,000 00		2,416 66	20,722 32
1869			8,367 52	12,000 00		1,000 00	21,367 52
1870			7,853 03	18,698 89		7,679 78	34,231 70
1871			34,773 72	12,018 98			46,792 70
1872			20,049 50	12,208 76			32,258 26
1873			36,891 74	12,099 44		6,889 20	55,880 38
1874			40,098 84	12,959 25		5,428 98	58,487 07
1875			35,579 24	12,047 43		5,620 17	53,246 84
1876			42,920 10	86 08		5,690 28	48,696 46
1877				51 87	43,639 97		43,691 84
1878	1,860 00			556 00		34,388 59	36,804 59
1879							
1880	2,561 55			323 16			2,884 71
1881	2,338 41			5,535 22			7,873 63
1882				9,826 23			9,826 23
1883	11,781 27			6,978 54			18,759 81
1884	7,486 62	62,256 58		8,305 41			78,048 61
1885	16,725 47	11,003 38		1,210 61			28,939 46
1886	20,323 62	10,383 59		776 30			31,483 51
1887	20,873 21	23,545 34		649 04			45,067 59
1888	34,533 07	22,898 90		5,799 83			63,231 80
1889	10,091 87	16,552 64		5,207 64			31,852 15
1890	16,426 69	50,909 74		49,550 21			116,886 64
1891	16,925 31	16,314 41		56,922 05			90,161 77
1892	6,540 49	19,062 51		65,074 07			90,677 07
1893	8,498 41	4,313 73	28,640 93	63,965 54			105,418 61
1894	4,178 85	4,855 11	15,746 31	60,265 22			85,045 49
1895	10,695 48	13,221 27	19,304 87	60,769 56			103,991 18
1896	10,893 40	6,562 20	25,194 21	70,340 22			112,990 03
1897	2,937 47	5,118 99	25,142 90	62,777 12		597 39	96,573 87
1898	1,719 69	8,327 96	28,042 10	56,284 42	1,400 00		95,774 17
1899	1,318 79	67,005 86	22,085 19	66,850 29			157,260 13
1900	11,873 35	33,496 99	22,802 18	58,836 57			127,009 09
1901	12,267 99	28,658 78	33,986 68	61,938 61			136,852 06
1902	3,658 23	21,752 58	34,138 50	65,770 65			125,319 96
1903	2,491 84	15,570 43	35,398 00	63,175 19			116,635 46
1904	3,730 79	85,353 17	36,262 32	66,067 30			191,413 58
1905	1,498 14	97,507 00	38,660 52	64,515 07			202,180 73
1906	9,160 44	99,018 80	37,484 64	62,171 45			267,835 33
	253,390 45	723,689 96	635,728 70	1,204,612 22	45,039 97	69,711 05	2,932,172 35

S. LEONARD SHANNON,
Accountant.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, September 30, 1906.

RECAPITULATION—RAILWAYS AND CANALS, TO JUNE 30, 1906.

Expenditure.

Chargeable to Capital Account—			
Railways, *see* Statement page 46		$154,876,086 62	
Canals " " 28		90,846,879 60	
			$ 245,722,966 22
Chargeable to Consolidated Fund—			
*Railway Subsidies as per Statement No. 3, page 50		34,255,135 06	
Income Account—			
Intercolonial Railway. *see* page 32	$ 280,000 00		
Add transferred from Capital " 33	296,872 90		
Railways " 48	723,689 96		
Canals " 28	4,324,657 77		
" " 48	253,390 45		
General, Railways and Canals " 48	635,728 70		
		6,514,339 78	
Revenue Account—			
Canals—Operating and maintaining Staff, *see* page 28	$ 9,901,481 37		
Canals—Repairs, *see* page 28	7,864,260 26		
" " 48	1,204,612 22		
Railways—Working Expenses, *see* page 47	123,865,523 80		
" " 48	45,039 97		
General—Railways and Canals " 48	69,711 05		
		142,950,628 67	
			183,720,103 51
Total expenditure on Railways and Canals			$ 429,443,069 73

EXPENDITURE AS ABOVE SEPARATED AS BETWEEN RAILWAYS AND CANALS.

Railways.

Capital Account	$ 154,876,086 62	
Consolidated Fund	159,466,261 69	
		314,342,348 31

Canals.

Capital Account	$ 90,846,879 60	
Consolidated Fund	23,548,402 07	
		114,395,281 67

General, Common to both.

Consolidated Fund	705,439 75
Total expenditure on Railways and Canals	$ 429,443,069 73

REVENUE, SEPARATED AS BETWEEN RAILWAYS AND CANALS.

Railways—Revenue received from July 1, 1867, to June 30, 1906, (for details *see* page 47)	$ 112,571,053 19
Canals " " " " " 28)	13,513,583 32
Total Revenue, Railways and Canals	$ 126,084,636 51

* This amount does not include the subsidy of $25,000,000 to the Canadian Pacific Railway, nor the amount $660,683.09 expended on the Annapolis and Digby Railway, both of which are included in Capital Account, nor the annual payment of $119,700 to the Provincial Government of Quebec, being interest at the rate of 5 per cent on the sum of $2,394,000 granted by 47 Vic., ch. 8 (1884) for the line between Ottawa and Quebec, which sum was transferred to the Public Debt as a liability, and is dealt with by the Finance Department, *see* Public Accounts, 1898-94, page x.

S. LEONARD SHANNON,
Accountant.

Department of Railways and Canals,
Ottawa, September 30, 1906.

PART II

SKETCH MAPS OF DOMINION RAILWAYS AND CANALS

AND

REPORT OF THE CHIEF ENGINEER

COMPRISING REPORTS OF

GENERAL MANAGER OF GOVERNMENT RAILWAYS AND SUPERINTENDENTS OF CANALS

1905-1906

DEPARTMENT OF RAILWAYS AND CANALS.

LIST OF ANNUAL REPORTS UNDER THIS COVER.

1. M. J. Butler, Chief Engineer Railways and Canals, General Report.
2. D. Pottinger, General Manager Government Railways, I.C.R.
   W. B. MacKenzie, Chief Engineer, I.C.R.
   T. C. Burpee, Engineer of Maintenance, I.C.R.
   G. R. Joughins, Superintendent of Motive Power, I.C.R.
   T. Williams, Chief Accountant and Treasurer, I.C.R.
3. D. Pottinger, General Manager Government Railways, Windsor Branch.
   T. C. Burpee, Engineer of Maintenance, Windsor Branch.
   T. Williams, Chief Accountant and Treasurer, Windsor Branch.
4. D. Pottinger, General Manager Government Railways, P.E.I. Ry.
   W. B. MacKenzie, Chief Engineer, P.E.I. Ry.
   G. A. Sharp, Superintendent, P.E.I. Ry.
   W. S. Poole, Mechanical Superintendent, P.E.I. Ry.
   W. T. Huggan, Accountant and Auditor, P.E.I. Ry.
5. E. Marceau, Superintending Engineer, Quebec Canals.
6. L. N. Rheaume, St. Lawrence Canals.
7. W. A. Stewart, Superintendent of Operation, St. Lawrence Canals.
8. J. L. Weller, Superintending Engineer, Welland Canal.
9. F. B. Fripp, Engineer in Charge, Sault Ste. Marie.
10. J. C. Boyd, Superintendent, Sault Ste. Marie.
11. A. J. Grant, Superintending Engineer, Trent Canal.
12. A. T. Phillips, Superintending Engineer, Rideau Canal.
13. J. H. Devereaux, Lock Master, St. Peter's Canal.
14. J. H. McClellan, Superintendent, Trent Canal.
15. E. J. Walsh, Trent Canal Surveys.
16. C. Schreiber, C.M.G., Report on Western Division National Transcontinental Railway.

CHIEF ENGINEER'S REPORT.

Department of Railways and Canals,
Office of the Chief Engineer,
Ottawa, November 1, 1906.

Sir,—I have the honour to submit my annual report for the fiscal year ended June 30, 1906, covering, however, the works of construction up to October 1, 1906.

First.—The annual report of the General Manager of Government Railways, to which are attached the report of the Chief Engineer, the Engineer of Maintenance, the Mechanical Superintendent of the Intercolonial division and the reports of the Superintendent of the Prince Edward Island division, with statements of accounts prepared by the Accountants of these roads.

Second.—The annual reports of the Superintending Engineers of the several canals, and of the Superintendents of the Sault Ste. Marie canal, the St. Peter's canal, Trent and of the St. Lawrence canals. And the engineer in charge of the improvements to the entrance to the Sault Ste. Marie canal.

The following shows the length of the government railways in operation on June 30, 1906:—

INTERCOLONIAL RAILWAY.

MAIN LINE AND BRANCHES.

	MILES.
Halifax to Truro	61·83
Dartmouth Branch	12·38
Truro to Moncton	124·03
Moncton to St. John	89·36
Point du Chene Branch	11·38
Moncton to Campbellton	185·16
Campbellton to Ste. Flavie	105·09
Indian Town Branch	13·51
Ste. Flavie to Rivière du Loup	83·28
Rivière Ouelle Branch	6·25
Rivière du Loup to Point Lévis	115·47
Hadlow to Chaudière Curve	5·62
Chaudière to Ste. Rosalie	115·95
St. Charles Junction to Chaudière Junction	16·98
Nicolet Branch	14·61
Dalhousie Branch	7·00
Pictou to Oxford Junction	69·10

Brown's Point to Stellarton	12·23
Junction near New Glasgow to Pictou Landing	7·76
Pugwash Junction to Pugwash	4·70
Truro to Mulgrave	123·07
Point Tupper to Sydney	91·48
North Sydney Branch	4·38
Fredericton to Loggieville	125·00
	1,405.62

LEASED.

Length of main line from Point Lévis to Hadlow	1·50	
Chaudière Curve to Chaudière	1·18	
Ste. Rosalie Junction to Montreal	37·62	
		40·30
		1,445·92

FREIGHT BRANCHES AND Y'S OWNED.

Y's at Windsor Junction, Truro, Brown's Point, Oxford Junction, Painsec Junction, Moncton, Chaudière, Springhill Junction, Stellarton, Mulgrave, Nth. Sydney Junction, Newcastle, Rivière Ouelle, St. Charles Junction, St. Leonard Junction, Ste. Rosalie Junction	3·62
Switch near North Street to D.W.T., Halifax	·85
Halifax Cotton Factory	2·10
Dartmouth Station to end of line	2·29
Stewiacke Wharf Branch	·87
Sydney Station to Wharf	·90
North Sydney Station to Wharf	·78
Switch near Pictou Landing to Coal Wharf	·75
Pictou Station to Wharf	·15
Pictou Station to Copper Crown Smelter	·72
Logan's Tannery Siding	·48
Pugwash Station to Wharf	·07
Sackville Wharf Branch	·47
Dorchester Wharf Branch	1·00
Moncton Wharf Branch	1·00
Courtney Bay Branch	2·39
St. John Water Front Extension	·44
St. John Station to Deep Water Wharf	·28
Newcastle Wharf Branch	1·75
Dalhousie Station to Wharf Branch	·40
Campbellton Wharf Branch	·43
Rimouski Wharf Branch	2·00
Trois Pistoles Spur	2·38

Rivière du Loup Wharf Branch	4·35	
St. Pacome Spur	1·27	
Nicolet Station to Wharf	2·05	
Carmel Branch, Main Line to Village (estimated)	1·05	
Blackville to Indian Town	8·50	
		43·34
		1,489·26

WINDSOR BRANCH.

Windsor Junction to Windsor		32

PRINCE EDWARD ISLAND RAILWAY.

Souris to Tignish	166	
Mount Stewart to Georgetown	24	
Charlottetown to Royalty Junction	5	
Emerald Junction to Cape Traverse	13	
Alberton to Cascumpec Wharf	1	
Charlottetown to Murray Harbour	52·3	
		261·3
Total length of government railways		1,782·56

The result of the year's operations of the government railways may be stated as follows :—

Name of Railway.	Mileage in Operation.	Amount.		Profit.	Loss.
			$ cts.	$ cts.	$ cts.
Intercolonial Division	1,446	Working expenses	7,581,914 36		
		Earnings	7,643,829 90	61,915 54	
Windsor Branch	32	One-third earnings	49,452 50		
		Maintenance	17,485 97	31,966 53	
Prince Edward Island Division	261	Working expenses	294,253 16		
		Earnings	257,270 57		36,982 59
Total, miles	1,739				
		Deduct loss from profit		36,982 59	
		Net profit		56,899 48	

The maintenance of the roads and rolling stock has received careful attention, and both roads continue to be in efficient condition; the rolling stock is being brought up to the modern standard.

The working expenses of the Intercolonial Railway given above include the $140,000 rental paid to the Grand Trunk Railway.

The gross earnings of the government railways for the last two years compare as follows:—

	1904-05.	1905-06.
Intercolonial Division	$6,783,522 83	$7,643,829 90
Windsor Branch	50,038 67	49,452 50
Prince Edward Island Division	217,330 61	257,270 57
	$7,050,892 11	$7,950,552 97

Showing an increase in the gross earnings of $898,660.86.

The gross working expenses of the government railways for the last two years compare as follows:—

	1904-05.	1905-06.
Intercolonial Division	$8,508,826 75	$7,581,914 36
Windsor Branch	26,863 16	17,485 97
Prince Edward Island Division	370,464 44	294,253 16
Total	$8,906,154 35	$7,893,653 49
Gross working expenses of government railways	$8,906,154 35	$7,893,653 49
Gross earnings of government railways	7,050,892 11	7,950,552 97
Excess of earnings over working expenses, which include rental, $140,000, Grand Trunk Railway	$ 56,899 48	

Showing a decrease in working expenses for the year, compared with the previous year, of $926,912.39, which is made up of the following:—

	1904-1905.	1905-1906.	Difference.	
			Increase.	Decrease.
	$ cts.	$ cts.	$ cts.	$ cts.
Locomotive power	3,116,653 49	2,930,075 83		186,577 66
Car expenses	2,040,133 13	1,617,119 70		423,013 43
Maintenance of way and works	1,722,616 65	1,397,143 62		325,473 03
Station expenses	937,816 11	1,032,764 20	94,948 09	
General charges	535,541 85	586,267 90	50,726 05	
	8,352,761 23	7,563,371 25	145,674 14	935,064 12
Rental leased lines	140,000 00	140,000 00		
	8,492.761 23	7,703,371 25		
Car mileage (total decrease, 137,522·41)	+ 16,065 52	—121,456 89		
	8,508,826 75	7,581,914 36		

INTERCOLONIAL DIVISION.

COMPARATIVE Statement of Ocean-borne Passenger Business done at the Port of Halifax during the Winter Seasons of 1904-1905 and 1905-1906.

Name of Steamer.	1904-1905. No. of Passengers.			Name of Steamer.	1905 1906. No. of Passengers.		
	1st Class.	2nd Class.	Total.		1st Class.	2nd Class.	Total.
Pretorian	33	613	646	Pretorian	112	1,849	1,961
Parisian	61	1,217	1,278	Parisian	45	1,938	1,983
Bavarian	76	1,882	1,958	Southwark	Nil.	1,648	1,648
Corinthian	35	714	749	Cormthian	43	1,288	1,331
Virginian	25	832	857	Virginian	172	1,945	2,117
Siberian	8	522	530	Siberian	1	1,078	1,079
Mongolian	8	241	249	Mongolian	Nil.	884	884
Dania	7	454	461	Dahome	3	30	33
Albano	Nil.	452	452	Corean	Nil.	546	546
Numidian	4	114	118	Numidian	31	1,245	1,276
Victorian	34	881	915	Victorian	85	1,416	1,501
Canada	36	1,337	1,373	Canada	31	986	1,017
Carthaginian	8	539	547	Carthaginian	8	1,361	1,369
Tunisian	54	1,390	1,444	Tunisian	246	3,719	3,965
Sardinian	5	272	277	Sardinian	Nil.	443	443
Laurentian	8	689	697	Laurentian	Nil.	717	717
Pomeranian	Nil.	229	229	Pomeranian	Nil.	447	447
Ionian	75	1,496	1,571	Norsman	Nil.	1,746	1,746
Dominion	23	431	454	Dominion	38	1,171	1,209
Sicilian	25	977	1,002	Sicilian	56	2,835	2,891
Pallanza	Nil.	1,012	1,012	Kensington	Nil.	2,287	2,287
Vancouver	7	360	367	Sarmatian	Nil.	214	214
Kensington	11	394	405	City of Vienna	5	305	310
Buenos Ayrean	4	457	461				
Sarmatian	2	157	159				
Total	549	17,662	18,211	Total	876	30,098	30,974

* NOTE.—Of the total number 30,974, 22,864 travelled over the Intercolonial Railway as follows: 18,033 via St. John and Canadian Pacific, 4,832 via Intercolonial Railway, long haul.

COMPARATIVE Statement of Ocean-borne Freight Traffic during the Winter Seasons of 1904-5 and 1905-6.

Name of Line of Steamers.	WINTER OF 1904-1905.			Name of Line of Steamers.	WINTER OF 1905-1906.		
	Measurement tons	Weight tons.	Total tons.		Measurement tons	Weight tons.	Total tons.
Allan Line.....	4,736	3,394	8,130	Allan Line.....	5,414	3,656	9,070
Furness Line. ...	3,927	5,189	9,116	Furness Line....	4,257	8,728	12,985
Canadian Pacific..	275	47	322	Canadian Pacific...	388	1,121	1,509
Canada-Jamacia Steamship Line	.....	1,938	1,938	Canada-Jamacia Steamship Line	.....	873	873
Pickford and Black	.....	13,399	13,399	Pickford and Black	15	8,942	8,957
Various other lines and Tramp Steamers	.....	48,800	48,800	Various other lines and Tramp Steamers	.....	.....	.....
Total	8,938	72,767	81,705	Total.	10,074	23,320	32,394

The above statement shows a decrease of 48,311 tons of ocean-borne freight traffic for the winter season of 1905-06 as compared with the winter season of 1904-05.

The following is a statement of the quantity and classes of the rolling stock purchased on capital account during the fiscal year ending June 30, 1906:—

	Engines.	Dining cars.	PASSENGER CAR STOCK.					Conductor's van.	Oil tank cars.	Box, cattle and refrigerator cars.	Platform cars.	Coal cars of 3 several kinds.	Snow ploughs.	Wing ploughs.	Flangers.	Ballast plough.	Auxiliary cars.	Air Brake Instruction car.	Steam cranes for coal.
			1st class sleeping and parlour.	1st class.	2nd class sleepers.	2nd class.	Baggage and mail postal.												
	16	..	.....	...	5	...	...	20	....	385	.....	130	2	10	2	21	....	...	5

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The following is a statement of the quantity and classes of rolling stock which have been rebuilt during the year ended June 30, 1906, at the cost of revenue to maintain the work:—

—	Engines.	Passenger Car Stock.					Conductor's van.	Box car.	Platform cars.	Refrigerator cars.	Coal cars of three several kinds.	Snow ploughs.	Wing ploughs.	Flangers.	Rotary snow ploughs.	Auxiliary.
		1st class sleeping and parlour.	1st class.	2nd class sleepers.	2nd class.	Baggage and express.										
Total			1					1	26			1		1		

Nineteen box cars of 60,000 lbs. capacity were purchased on revenue account.

The following table shows the working expenses, gross earnings, the tonnage of freight and number of passengers carried each year since July 1, 1876, when the road was first opened as a through line to the west.

Year.	Average Miles in Operation.	Working Expenses.	Gross Earnings.	Profit.	Loss.	Tons of Freight carried.	No. of Passengers carried.
		$ c.	$ c.	$ c.	$ c.		
1876–77	714	1,661,673 55	1,154,445 33		507,228 22	421,327	513,420
1877–78	714	1,816,273 56	1,378,946 78		432,326 78	522,710	518,957
1878–79	714	2,010,183 22	1,294,009 69		716,083 53	510,861	640,101
1879–80	829	1,603,429 71	1,506,298 48		97,131 23	561,924	581,483
1880–81	840	1,759,851 27	1,760,393 92	542 65		725,777	631,245
1881–82	840	2,069,657 48	2,079,262 66	9,605 18		838,956	779,994
1882–83	840	2,360,373 27	2,370,910 10	10,547 83		970,961	878,600
1883–84	887	2,377,433 62	2,384,414 92	6,981 30		1,009,237	944,636
1884–85	941	2,519,751 56	2,441,203 66		78,547 90	989,986	957,228
1885–86	946	2,583,999 67	2,450,093 88		133,905 79	1,023,788	932,880
1886–87	977	2,922,369 62	2,660,116 93		262,252 69	1,143,020	942,784
1887–88	971	3,366,781 74	2,983,336 05		383,445 69	1,288,823	1,040,163
1888–89	971	3,244,647 73	2,967,801 00		276,847 73	1,218,877	1,136,272
1889–90	971	3,560,575 74	3,012,739 87		847,835 87	1,368,819	1,219,233
1890–91	1,094	3,662,341 94	2,977,395 38		684,946 56	1,304,534	1,298,304
1891–92	1,142	3,439,377 00	2,945,441 97		493,935 03	1,264,575	1,297,732
1892–93	1,142	3,045,317 50	3,065,499 09	20,181 59		1,388,080	1,292,878
1893–94	1,142	2,981,671 98	2,987,510 27	5,838 29		1,342,710	1,301,062
1894–95	1,142	2,936,902 74	2,940,717 95	3,815,21		1,276,816	1,352,667
1895–96	1,142	3,012,827 62	2,957,640 10		55,187 52	1,379,618	1,471,866
1896–97	1,145	2,925,968 67	2,866,028 02		59,940 65	1,296,028	1,501,690
1897–98	1,201	3,327,648 51	3,117,669 85		209,978 66	1,424,576	1,523,444
*1898–99	1,301	3,675,686 21	3,738,331 44	62,645 43		1,750,761	1,603,095
*1899–1900	1,301	4,431,404 69	4,552,071 71	120,667 02		2,151,208	1,791,754
*1900–01	1,301	5,460,422 64	4,972,235 87		488,186 77	2,111,310	2,025,295
*1901–02	1,301	5,574,563 30	5,671,385 91	96,822 61		2,385,816	2,186,226
*1902–03	1,315	6,196,653 19	6,324,323 72	127,670 53		2,790,737	2,401,230
*1903–04	1,321	7,239,982 04	6,339,231 43		900,750 61	2,664,149	2,663,156
*1904–05	1,446	8,508,826 75	6,783,522 83		1,725,303 92	2,782,257	2,810,960
*1905–06	1,446	7,581,914 36	7,643,829 90	61,915 54		3,156,189	2,737,160

* The working expenses include the rental paid for leased line.

INTERCOLONIAL RAILWAY.

STATEMENT of Earnings from the several sources named from June 30, 1876, to June 30, 1906.

Year.	Miles in operation.	Passenger traffic.	Freight traffic.	Mails and sundries.	Total.
		$ c.	$ c.	$ c.	$ c.
1876-77	714	460,368 15	607,564 99	86,512 21	1,154,443 33
1877-78	714	475,256 82	801,709 82	101,985 07	1,378,946 78
1878-79	714	451,893 29	752,490 85	88,715 55	1,294,009 69
1879-80	829	490,388 66	915,486 50	100,473 32	1,506,298 48
1880-81	840	545,114 48	1,113,872 21	101,407 23	1,760,493 92
1881-82	850	651,296 94	1,303,496 00	124,470 72	2,079,262 66
1882-83	940	741,992 70	1,487,601 98	141,326 40	2,379,910 10
1883-84	887	775,783 77	1,461,390 37	147,240 78	2,383,414 92
1884-85	941	747,285 13	1,542,052 10	151,566 35	2,441,203 66
1885-86	946	765,900 03	1,523,487 72	160,706 13	2,450,093 88
1886-87	977	828,328 28	1,677,971 59	153,817 06	2,660 116 93
1887-88	971	884,448 07	1,932,877 85	166,010 13	2,983,336 95
1888-89	971	906,246 47	1,909,094 44	152,460 09	2,967,801 00
1889-90	971	895,094 53	1,964,646 86	152,998 48	3,012,739 87
1890-91	1,094	962,316 88	1,854,629 88	160,448 62	2,977,395 38
1891-92	1,142	961,427 94	1,803,529 03	180,485 00	2,945,441 97
1892-93	1,132	1,002,912 74	1,868,823 84	184,468 80	3,065,499 09
1893-94	1,142	958,915 13	1,834,126 34	193,762 51	2,987,502 27
1894-95	1,142	963.914 44	1,782,608 54	194,194 97	2,940,717 95
1895-96	1,142	971,426 26	1,788,813 18	167,400 66	2,957,640 10
1896-97	1,145	979,005 57	1,687,050 42	199,972 03	2,866,028 02
1897-98	1,201	1,053,864 64	1,857,740 06	206,065 15	3,117,669 85
1898-99	1,315	1,167,453 16	2,348,096 58	222,781 70	3,738,331 44
1899-00	1,315	1,404,469 87	2,912,790 52	234,811 32	4,552,071 91
1900-01	1,315	1,607,166 79	3,121,006 15	244,062 93	4,972,235 87
1901-02	1,315	1,770,941 13	3,644,513 42	255,931 36	5,671,385 91
1902-03	1,315	1,927,916 97	4,128,255 00	268,151 75	6,324,323 72
1903-04	1,321	2,021,568 40	4,041,122 48	276,540 55	6,339,231 43
1904-05	1,446	2,105,066 75	4,373,178 75	305,277 53	6,783,522 83
1905-06	1,446	2,297,716 52	5,019,805 53	326,307 85	7.643,829 90

INTERCOLONIAL RAILWAY.

STATEMENT showing the Number of Tons of Local and Through Freight Carried from June 30, 1876, to June 30, 1906.

Year.	Miles in operation.	Local freight.	Through freight.	Total.
1876-7	714	The information for these		421,327
1877-8	714	years was destroyed		522,710
1878-9	714	when the general offices		510,861
1879-0	829	in Moncton were burned.		561,924
1880-1	840			725,777
1881-2	840	571,684	267,272	838,956
1882-3	840	537,025	443,936	970,961
1883-4	887	584,581	424,656	1,009,237
1884-5	941	506,574	483,362	989,936
1885-6	946	580,076	443,712	1,023,788
1886-7	977	633,455	509,565	1,143,020
1887-8	971	727,599	561,224	1,288,823
1888-9	971	624,436	594,441	1,218,877
1889-0	971	756,696	612,123	1,368,819
1890-1	1,094	797,492	507,042	1,304,534
1891-2	1,142	750,783	513,792	1,264,575
1892-3	1,142	1,030,628	357,452	1,388,080
1893-4	1,142	966,114	376,596	1,342,710
1894-5	1,142	901,374	366,442	1,267,816
1895-6	1,142	1,011,229	368,389	1,379,618
1896-7	1,145	927,167	368,859	1,296,028
1897-8	1,201	1,053,569	381,007	1,434,576
1898-9	1,315	1,351,569	399,192	1,750,761
1899-0	1,315	1,713,928	437,280	2,151,208
1900-1	1,315	1,633,671	477,639	2,111,310
1901-2	1,315	1,914,551	471,265	2,385,816
1902-3	1,315	2,239,993	550,744	2,790,737
1903-4	1,321	2,123,261	540,888	2,664,149
1904-5	1,446	2,119,528	662,729	2,782,257
1905-6	1,446	2,413,863	742,326	3,156,189

INTERCOLONIAL RAILWAY.

STATEMENT of the Number of Local and Through Passengers carried from June 30, 1876, to June 30, 1906.

Year	Miles in Operation.	Number of Local Passengers.	Number of Through Passengers.	Total.
1876-7	714	The information for these years was destroyed when the general offices in Moncton were burned.		613,420
1877-8	714			618,957
1878-9	714			640,101
1879-80	829			581,483
1880-1	840			631,245
1881-2	840	647,534	132,460	779,994
1882-3	840	728,186	150,414	878,600
1883-4	887	784,715	159,921	944,636
1884-5	941	812,028	145,200	957,228
1885-6	946	784,817	148,063	932,880
1886-7	977	814,032	128,752	942,784
1887-8	971	948,324	91,839	1,040,163
1888-9	971	1,050,592	85,680	1,136,272
1889-90	971	1,112,695	91,531	1,219,233
1890-1	1,094	1,203,814	94,490	1,298,304
1891-2	1,142	1,198,649	99,083	1,297,732
1892-3	1,142	1,188,827	104,051	1,292,878
1893-4	1,142	1,216,027	85,035	1,301,062
1894-5	1,142	1,272,284	80,383	1,352,667
1895-6	1,142	1,386,803	85,063	1,471,866
1896-7	1,145	1,416,631	85,059	1,501,690
1897-8	1,201	1,438,590	89,854	1,523,444
1898-9	1,315	1,504,652	98,443	1,603,095
1899-1900	1,315	1,678,858	112,896	1,791,754
1900-1	1,315	1,905,599	119,696	2,025,295
1901-2	1,315	2,061,196	125,030	2,186,226
1902-3	1,315	2,255,013	149,217	2,404,230
1903-4	1,321	2,447,843	215,313	2,663,156
1904-5	1,446	2,589,928	221,032	2,810,960
1905-6	1,446	2,491,472	245,688	2,737,160

The following table shows the number of tons of coal carried over the Intercolonial Railway from the Nova Scotia collieries to Ste. Rosalie, Montreal and St. John for points west thereof, and to local stations in each year since the road was opened as a through line :—

Year.	For the West.			To Local Stations.	Total.
	Via Ste. Rosalie.	Via Montreal.	Via St. John.		
1876–77				103,420	103,420
1877–78				97,043	97,043
1878–79		300		112,232	112,532
1879–80		1,097		135,369	136,466
1880–81		6,102	4,022	174,483	184,607
1881–82		18,015	11,779	218,364	248,158
1882–83		12,837	22,206	227,380	262,423
1883–84		32,014	19,534	252,014	293,562
1884–85		133,440	1,773	213,791	349,004
1885–86		171,170	21,150	215,272	407,592
1886–87		192,871	27,536	233,178	453,585
1887–88		183,704	36,228	309,727	529,659
1888–89		160,026	27,923	338,538	526,487
1889–90		164,453	25,126	366,967	554,546
1890–91		113,996	69,213	344,829	498,038
1891–92		35,447	5,918	392,441	433,806
1892–93		136,868	3,775	402,653	543,296
1893–94		102,273	8,028	367,390	478,691
1894–95		67,082	7,865	310,253	385,200
1895–96		53,124	9,681	369,708	432,513
1896–97		38,395	12,305	331,469	382,172
1897–98		9,084	9,796	351,069	369,949
1898–99		4,644	5,399	484,163	494,206
1899–1900		3,495		599,714	603,289
1900–01	136			506,454	506,590
1901–02	1,131	5,763	3,640	546,986	557,520
1902–03	2,200	7,817	6,775	725,727	742,519
1903–04	2,260	637	513	691,346	694,761
1904–05	800	265	5,022	596,290	602,377
1905–06	7,542	1,625	661	610,444	620,272

TABLE showing the number of bushels of grain carried during each year for shipment at Halifax since the road was opened as a through line to the west.

Year.	Bushels.		Total.	Year.	Bushels.		Total.
	Via Chaudière.	Via St. John.			Via Chaudière.	Via St. John.	
1876-77				1891-92	845,997	519,500	1,265,497
1877-78				1892-93	155,306	197,666	352,975
1878-79				1893-94	Nil.	8,026	8,026
1279-80				1894-95	Nil.	Nil.	Nil.
1880-81				1895-06	Nil.	Nil.	Nil.
1881-82				1896-97	Nil.	Nil.	Nil.
1882-83	31,011		31,011	1897-98	8,000	Nil.	8,000
1883-84	73,389		73,389	1898-99	30,000	Nil.	30,000
1884-85	300,901		300,901	1899-1900	13,239	Nil.	13,239
1885-86	389,122		389,122	1900-01	147	Nil.	147
1886-87	575,880		575,880	1901-02	Nil.	Nil.	Nil.
1887-88	69,021		69,021	1902-03	Nil.	Nil.	Nil.
1888-89	129,725		129,725	1903-04	147,438	Nil.	147,438
1889-90	502,012		502,012	1904-05	Nil.	Nil.	Nil.
1890-91	148,803	59,543	218,337	1905-06	*170,000		170,000

* Via Montreal.

TABLE showing the number of barrels of flour and meal carried during each year since the road was first opened as a through line to the west.

Year.	Barrels.	Year.	Barrels.
1876-77	254,710	1891-92	954,015
1877-78	557,778	1892-93	856,913
1878-79	630,329	1893-94	944,967
1879-80	535,248	1894-95	938,351
1880-81	672,310	1895-96	822,097
1881-82	692,095	1896-97	847,701
1882-83	983,916	1897-98	987,408
1883-84	817,134	1898-99	1,157,250
1884-95	935,977	1899-1900	1,234,077
1885-86	761,127	1900-01	1,292,106
1886-87	763,894	1901-02	1,311,707
1887-88	871,838	1902-03	1,521,540
1888-89	948,514	1903-04	1,607,050
1889-90	1,116,050	1904-05	1,769,480
1890-91	1,013,129	1905-06	1,882,630

TABLE showing the number of bushels of grain carried during each year since the road was first opened as a through line to the west.

Year.	Bushels.	Year.	Bushels.
1876-77	292,852	1891-92	3,776,677
1877-78	331,170	1892-93	1,514,619
1878-79	302,921	1893-94	1,304,684
1879-80	534,021	1894-95	1,036,384
1880-81	565,678	1895-96	1,064,385
1881-82	560,253	1896-97	1,093,499
1882-83	1,195,601	1897-98	1,551,372
1883-84	654,673	1898-99	2,595,353
1884-85	734,902	1899-1900	2,720,453
1885-86	849,800	1900-1901	3,535,364
1886-87	1,018,395	1901-02	2,959,761
1887-88	1,219,035	1902-03	3,392,252
1888-89	1,256,158	1903-04	2,788,772
1899-90	2,610,202	1904-05	3,317,910
1890-91	2,890,921	1905-06	2,924,226

TABLE showing the quantity of lumber in feet carried during each year over the road since it was first opened for traffic as a through line to the west.

Year.	Feet.	Year.	Feet.
1876-77	50,096,474	1891-92	175,474,340
1877-78	56,626,547	1892-93	181,211,013
1878-79	55,626,696	1893-94	200,507,949
1879-80	55,462,654	1894-95	202,247,269
1880-81	72,841,388	1895-96	226,332,715
1881-82	78,356,418	1896-97	243,355,725
1882-83	104,633,417	1897-98	354,093,816
1883-84	131,120,948	1898-99	306,554,031
1884-85	138,493,675	1899-1900	379,350,074
1885-86	117,186,512	1900-1901	396,858,964
1886-87	161,801,763	1901-02	428,051,029
1887-88	197,755,272	1902-03	459,231,589
1888-89	199,507,777	1903-04	465,379,803
1889-90	210,886,071	1904-05	518,434,310
1890-91	184,188,324	1905-06	572,878,600

TABLE showing the number of live stock carried during each year over the road since it was first opened for traffic as a through line to the west.

Year.	Number.	Year.	Number.
1876-77	34,414	1891-92	87,889
1877-78	46,498	1892-93	93,369
1878-79	47,584	1893-94	79,203
1879-80	70,990	1894-95	72,106
1880-81	61,574	1895-96	64,051
1881-82	73,479	1896-97	72,082
1882-83	68,338	1897-98	89,301
1883-84	60,090	1898-99	109,821
1884-85	70,785	1899-1900	92,813
1885-86	74,498	1900-01	95,923
1886-87	82,896	1901-02	98,495
1887-88	98,302	1902-03	127,060
1888-89	85,960	1903-04	113,006
1889-90	80,771	1904-05	110,670
1890-91	95,529	1905-06	106,589

TABLE showing the number of tons of ocean-borne goods to and from Europe carried over the road during each year since it was first opened for traffic as a through line.

Year.	Via Ste. Rosalie and from the West.	Via Montreal to and from the West.	Via St. John to and from the West.	To and from local Stations.	Total.
1876-77					
1877-78		14,949		3,405	18,354
1878-79		21,628		2,643	24,271
1879-80		21,073		4,952	26,025
1880-81		15,454		3,334	18,788
1881-82		21,607		4,168	25,775
1882-83		24,875		7,911	32,786
1883-84		19,696		6,533	26,229
1884-85		22,787		8,405	31,192
1885-86		13,464		8,216	21,680
1886-87		16,923		9,811	26,734
1887-88		41,864		8,878	50,742
1888-89		17,340		11,481	28,821
1889-90		9,895		11,730	21,625
1890-91		9,923		10,764	20,687
1891-92		9,719	17	23,835	33,571
1892-93		7,295	100	12,319	19,714
1893-94		3,023	204	13,455	16,682
1894-95		6,749	213	10,399	17,361
1895-96		3,767	314	16,748	20,829
1896-97		2,654	263	17,239	20,156
1897-98		5,950	1,637	18,633	26,220
1898-99		2,465	243	31,555	34,263
1899-1900		2,379	307	37,108	39,794
1900-01	322	6,860	1,142	155,514	163,838
1901-02	1,106	7,780	1,528	172,733	183,147
1902-03	817	11,925	1,194	124,695	138,631
1903-04	2,079	21,377	2,994	146,070	174,520
1904-05	284	15,325	3,687	85,853	105,149
1905-06	2,026	17,217	5,337	128,462	153,042

SESSIONAL PAPER No. 20

TABLE showing the number of tons of raw and refined sugar carried over the road during each year since it was first opened as a through line.

Year.	Raw Sugar.					Refined Sugar.				
	Via Ste. Rosalie.	To Montreal for the West.	To St. John for the West.	To Local Stations	Total.	To Ste. Rosalie for the West.	To Montreal for the West.	To St. John for the West.	To Local Stations	Total.
		Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1876-77		340			340					
1877-78		186			186					
1878-79		1,041			1,041					
1879-80		12,220			12,220					
1880-81		13,872			13,872		4,022		2,902	6,924
1881-82		14,256		1,290	15,546		7,146		3,607	10,753
1882-83		9,465		508	9,973		11,126		5,497	16,623
1883-84		13,778		3,068	16,846		14,543		7,265	21,808
1884-85		10,381		3,661	14,042		18,024		8,445	26,469
1885-86		4,394		3,998	8,392		7,674		5,858	13,518
1886-87		20,450		8,500	28,950		15,044		8,395	23,439
1887-88		14,320		14,085	28,405		21,641		7,133	28,774
1888-89		24,358		7,160	31,518		12,955		11,120	24,075
1889-90		7,390		8,913	16,303		6,778		6,125	12,903
1890-91		5,088	4,670	8,215	17,973		10,130	468	5,996	16,594
1891-92		7,142	3,960	10,535	21,637		12,633	7,647	12,414	32,721
1892-93				10,137	10,137		8,327	6,456	7,840	22,623
1893-94				6,775	6,775		17,729	6,967	8,885	33,581
1894-95				10,342	10,342		13,351	15,819	4,695	33,865
1895-96				9,824	9,824		15,138	13,734	11,309	40,181
1896-97				4,925	4,925		5,694	8,069	6,957	20,720
1897-98							6,624	8,821	10,989	26,534
1898-99							8,138	2,193	15,833	26,164
1899-1900		96			96		9,795	257	19,655	29,907
1900-01		489			489	403	14,791	12	10,615	25,821
1901-02		90		11,553	11,643	3,101	6,831	861	18,839	29,632
1902-03		194		17,137	17,331	3,183	5,763	1,636	20,529	31,111
1903-04	357	875		7,495	8,727	6,013	8,628	879	29,400	44,920
1904-05	602	509	78	1,495	15,684	1,446	7,107	224	22,937	31,764
1905-06		715	68	9,308	10,091	4,235	12,268	176	24,780	41,459

TABLE showing the number of tons of fresh and salt fish carried over the road during each year since it was opened as a through line.

Year.	Fresh Fish.					Salt Fish.				
	To Ste. Rosalie for the West.	To Montreal for the West.	To St. John for the West.	To Local Stations.	Total	To Ste. Rosalie for the West.	To Montreal for the West.	To St. John for the West.	To Local Stations.	Total.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1876-77	.....	530	921	527	1,978	.....	551	1,848	802	3,201
1877-78	.....	596	1,015	474	2,085	.....	898	1,644	805	3,347
1878-79	.....	471	1,336	817	2,624	.....	988	1,038	1,048	2,974
1879-80	.....	519	1,362	453	2,334	.....	1,612	2,238	959	4,809
1880-81	.....	498	1,879	920	3,297	.....	2,418	937	1,051	4,406
1881-82	.....	475	1,619	957	3,051	.....	4,031	1,066	2,487	7,584
1882-83	.....	542	384	393	1,319	.....	3,229	759	1,354	5,412
1883-84	.....	838	1,682	412	2,932	.....	1,322	1,143	1,224	3,689
1884-85	.....	1,062	1,885	484	3,431	.....	3,563	3,600	1,596	8,759
1885-86	.....	1,669	1,645	902	4,216	.....	1,689	2,047	3,376	7,103
1886-87	.....	1,278	1,572	2,008	4,858	.....	3,236	569	1,747	5,552
1887-88	.....	1,533	1,477	1,031	4,041	.....	2,617	476	1,099	4,193
1888-89	.....	2,474	2,000	1,870	6,344	.....	3,070	7,746	2,994	13,810
1889-90	.....	2,235	1,787	2,111	6,223	.....	2,449	847	3,288	6,584
1890-91	.....	2,029	2,788	1,848	6,665	.....	1,953	1,917	3,236	7,106
1891-92	.....	1,367	1,746	547	3,660	.....	1,946	928	1,889	4,763
1892-93	.....	1,683	1,875	3,340	6,898	.....	3,262	1,811	2,176	7,249
1893-94	.....	1,959	2,192	2,224	6,375	.....	2,921	1,814	2,962	7,697
1894-95	.....	2,006	3,726	1,160	6,892	.....	2,075	1,849	5,285	10,209
1895-96	.....	1,966	3,059	1,319	6,344	.....	1,863	1,087	2,791	5,741
1896-97	.....	3,307	3,115	1,286	7,708	.....	2,168	1,176	2,536	5,880
1897-98	.....	3,575	3,703	1,052	8,330	.....	1,729	1,066	2,210	5,005
1898-99	.....	1,210	2,070	3,305	6,583	.....	1,651	1,198	3,625	5,474
1899-1900	.....	2,547	2,706	3,686	8,939	.....	2,421	1,563	2,659	6,643
1900-01	37	2,009	3,207	4,125	9,393	360	3,419	1,346	4,643	9,768
1901-02	219	3,013	4,373	5,477	13,082	283	3,150	1,413	5,196	10,042
1902-03	140	2,269	3,040	4,842	10,289	493	2,808	1,615	6,579	11,495
1903-04	539	1,939	3,588	5,002	11,068	225	2,359	564	5,848	8,996
1904-05	779	1,902	3,674	5,516	11,871	433	2,673	272	6,759	10,137
1905-06	284	2,748	2,439	7,706	13,177	683	2,740	346	6,994	10,763

During the year 106·34 miles of 56, 58, 67, 80 and 110 lb. rails were taken up and replaced with 67 and 80 lb. rails ; 609,244 ties and 207 sets of switches renewed.

Cost of road and equipment up to June 30, 1906—

On capital account—

Road, including $1,464,000 paid on account purchasing Drummond County Railway $64,354,747 25

Rolling stock 16,883,981 38

Total $81,238,728 63

The work of increased accommodation at the deep water terminus at Halifax is progressing, which facilitates the work of conducting the traffic.

Both the road and rolling stock have been efficiently maintained during the year.

Additions to the rolling stock continue to be made, as being a necessity for the efficient working of the traffic.

WINDSOR BRANCH.

This road continues to be operated by the Dominion Atlantic Railway Company, formerly the Windsor and Annapolis Railway Company, the company receiving two-thirds of the gross earnings for working the traffic, and the government one-third of the gross earnings for maintaining the way and works.

Year.	Miles in operation.	One-third gross earnings.	Proportion of one-third gross earnings credited to line Windsor Junction to Halifax.	Proportion of one-third gross earnings credited to the Windsor Branch.	Maintenance expenses.	Profit.	Loss.
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
1880-81..	32	28,434 29	7,217 76	21,216 53	20,502 26	714 27	
1881-82..	32	28,461 07	7,407 88	21,052 19	13,099 55	7,953 64	
1882-83..	32	31,199 77	8,085 88	24,113 89	23,103 93	1,009 96	
1883-84..	32	30,428 39	7,409 46	23,018 93	22,140 86	878 07	
1884-85..	32	32,246 30	7,794 95	24,451 35	18,751 96	5,699 39	
1885-86..	32	31,185 63	7,527 52	23,658 11	19,229 49	4,428 62	
1886-87..	32	33,564 58	8,237 00	25,327 58	26,042 33	....	714 75
1887-88..	32	32,242 85	6,689 30	24,553 55	24,040 33	513 22	
1888-89..	32	37,313 43	8,941 32	28,372 11	20,856 50	7,515 61	
1889-90..	32	39,544 19	9,381 73	30,162 46	18,982 82	11,179 64	
1890-91..	32	39,519 56	9,284 43	33,508 35	28,931 71	1,303 42	
1891-92..	32	42,891 23	9,382 38	30,235 13	19,514 37	13,994 48	
1892-93..	32	43,901 28	9,585 17	34,316 11	16,889 95	17,426 16	
1893-94..	32	41,834 70	8,859 23	32,975 47	17,645 09	15,330 38	
1894-95..	32	50,703 84	11,626 20	39,077 64	14,640 07	24,437 57	
1895-96..	32	47,456 74	10,894 91	36,561 83	16,476 46	20,985 37	
1896-97..	32	54,208 81	13,605 58	46,603 23	10,821 04	29,782 19	
1897-98..	32	48,892 21	11,665 57	37,226 64	18,181 09	14,045 01	
1898-99..	32	56,314 51	13,840 48	42,474 04	12,873 06	29,600 94	
1899-1900	32	62,266 61	14,925 18	47,351 43	12,891 56	34,459 87	
1900-01..	32	62,523 20	15,261 31	47,261 89	16,862 66	30,399 23	
1901-02	32	65,315 38	15,710 79	49,604 59	16,376 27	33,228 32	
1902-03..	32	56,417 38	13,856 57	42,560 81	17,843 19	24,717 62	
1903-04..	32	72,708 54	19,074 49	53,634 05	24,281 09	29,352 96	
1904 05..	32	66,798 46	16,759 79	50,038 67	26,863 16	23,175 51	
1905-06..	32	65,936 66	16,484 16	49,452 50	17,485 97	31,966 53	

PRINCE EDWARD ISLAND.

CAPITAL ACCOUNT.

The cost of road and rolling stock up to June 30, 1906 :—

Road, &c.	$ 6,631,664 57
Rolling stock	583,924 12
Total	$ 7,215,588 69

The rolling stock provided on capital account consisted of :—

Engines.	Passenger Car Stock.			Official cars.	Box, Cattle and Refrigerator cars.	Platform cars and Coal cars.	Conductors' vans.	Pay car.	Snow ploughs.	Flangers.
	1st class cars.	2nd class cars.	Baggage, smoking and postal.							
27	23	19	14	1	233 21 3	147 22	4	1	9	9
					257	169				

The capital expenditure during the year amounted to $496,124.89, of which was expended on the construction of the Murray Harbour branch railway and on the Hillsboro' bridge, $194,029.16.

The following works are being carried on, on capital account :—

1. Bridge over the Hillsboro' river at Charlottetown of which Mr. M. J. Haney is the contractor for the substructure, which work is well advanced. Total expenditure up to June 30, 1905 $ 1,287,258 60
Expenditure from June 30, 1905, to June 30, 1906 75,733 99
Total expenditure up to June 30, 1906 $ 1,362,972 59

2. Murray Harbour branch, of which Mr. Willard Kitchen is the contractor. Total expenditure up to June 30, 1905 $ 1,135,802 83
Expended from June 30, 1905, to June 30, 1906 118,295 17
Total expenditure up to June 30, 1906 $ 1,254,098 00

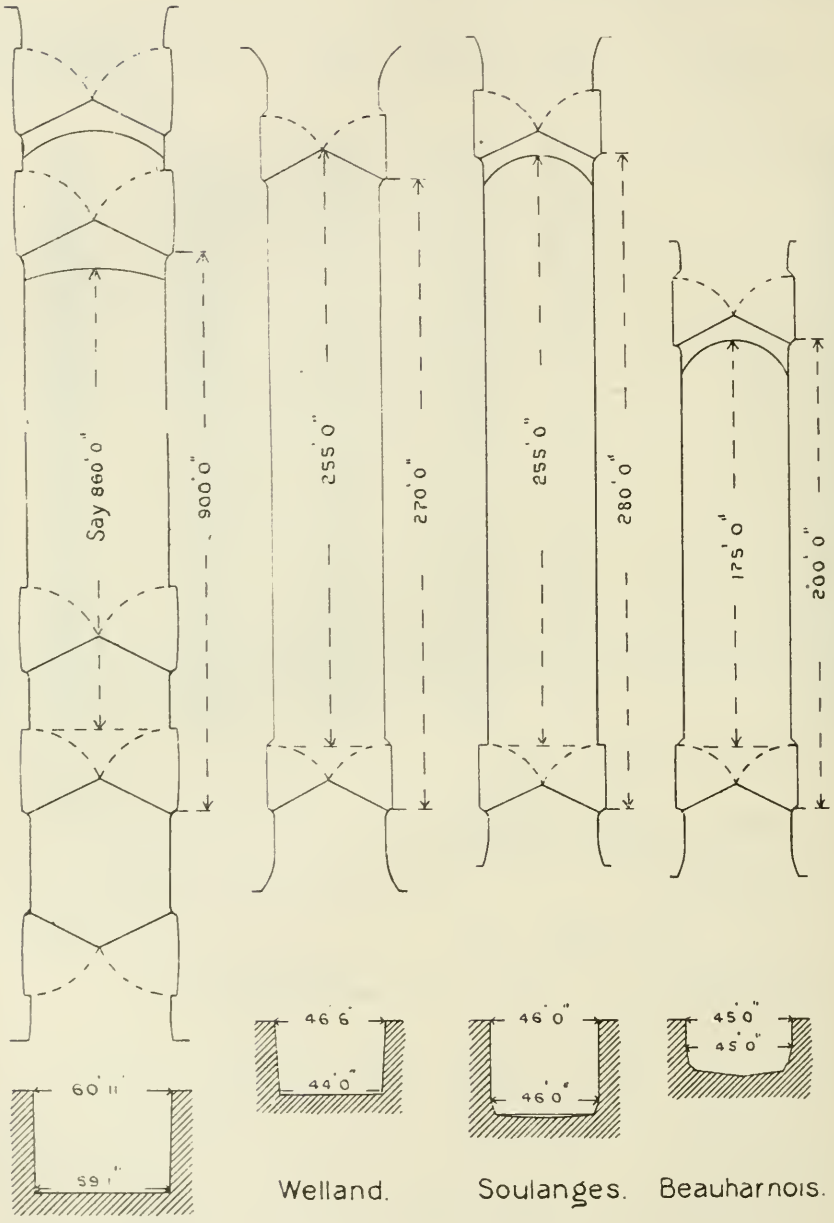
The following table shows the working expenses, the gross and net earnings, the tons of freight and number of persons carried each year since June 30, 1875, when the road was first opened for traffic :—

Year.	Miles in operation.	Working expenses.	Gross earnings.	Loss.	Tons of freight carried.	No. of passengers carried.
		$ cts.	$ cts.	$ cts.		
1875-76	199	214,930 43	118,060 96	96,869 47	28,358	93,964
1876-77	199	228,595 25	130,664 92	97,930 33	41,039	93,478
1877-78	199	221,599 49	135,899 60	85,699 89	38,668	111,428
1878-79	199	223,313 12	125,855 99	97,457 21	38,923	105,046
1879-80	199	164,640 55	113,851 11	50,789 44	37,208	90,533
1880-81	199	203,122 88	131,131 43	71,991 45	45,336	102,937
1881-82	199	228,259 97	137,267 54	90,922 43	48,315	118,436
1882-83	199	252,808 41	146,170 42	106,637 99	51,920	117,162
1883-84	199	236,428 13	144,504 12	91,924 01	51,841	118,988
1884-85	211	211,207 01	158,588 06	52,618 95	57,346	130,423
1885-86	211	216,744 34	155,584 36	61,159 98	57,913	120,374
1886-87	211	204,237 37	155,303 37	48,934 00	63,589	103,067
1887-88	211	229,639 95	158,365 62	71,276 33	59,603	131,246
1888-89	211	247,559 44	171,369 56	76,189 89	55,682	152,780
1889-90	211	266,485 85	160,971 78	105,514 07	51,604	133,099
1890-91	211	257,990 08	174,258 05	83,732 03	59,511	145,508
1891-92	211	289,706 38	157,442 69	132,263 69	51,065	139,389
1892-93	211	226,422 17	162,690 42	63,731 75	56,718	132,111
1893-94	211	226,891 06	158,533 83	68,357 23	53,577	123,727
1894-95	211	232,105 19	149,654 71	83,250 41	48,325	125,089
1895-96	211	225,138 56	146,476 54	78,662 02	46,395	122,586
1896-97	211	240,489 90	153,443 13	87,046 77	52,151	121,498
1897-98	211	231,418 74	158,950 61	72,468 13	57,539	126,510
1898-99	211	218,053 01	165,021 03	53,040 98	57,968	129,667
1899-1900	211	220,931 81	174,738 73	46,193 08	62,227	147,471
1900-01	211	261,766 24	193,833 48	67,883 76	73,696	157,793
1901-02	210	270,159 97	197,999 97	72,160 00	75,381	184,748
1902-03	209	259,637 82	217,714 24	41,923 58	80,582	205,265
1903-04	209	335,695 44	234,390 03	101,305 41	86,286	224,517
1904-05	209	370,464 44	217,330 61	153,133 83	75,969	235,194
1905-06	261	294,253 16	257,270 57	36,982 59	87,162	256,092

	Miles.
Steel rails (50 and 56 lb. to yard)	257·3
Iron rails (40 lb. to yard)	4
Total length of road	261·3

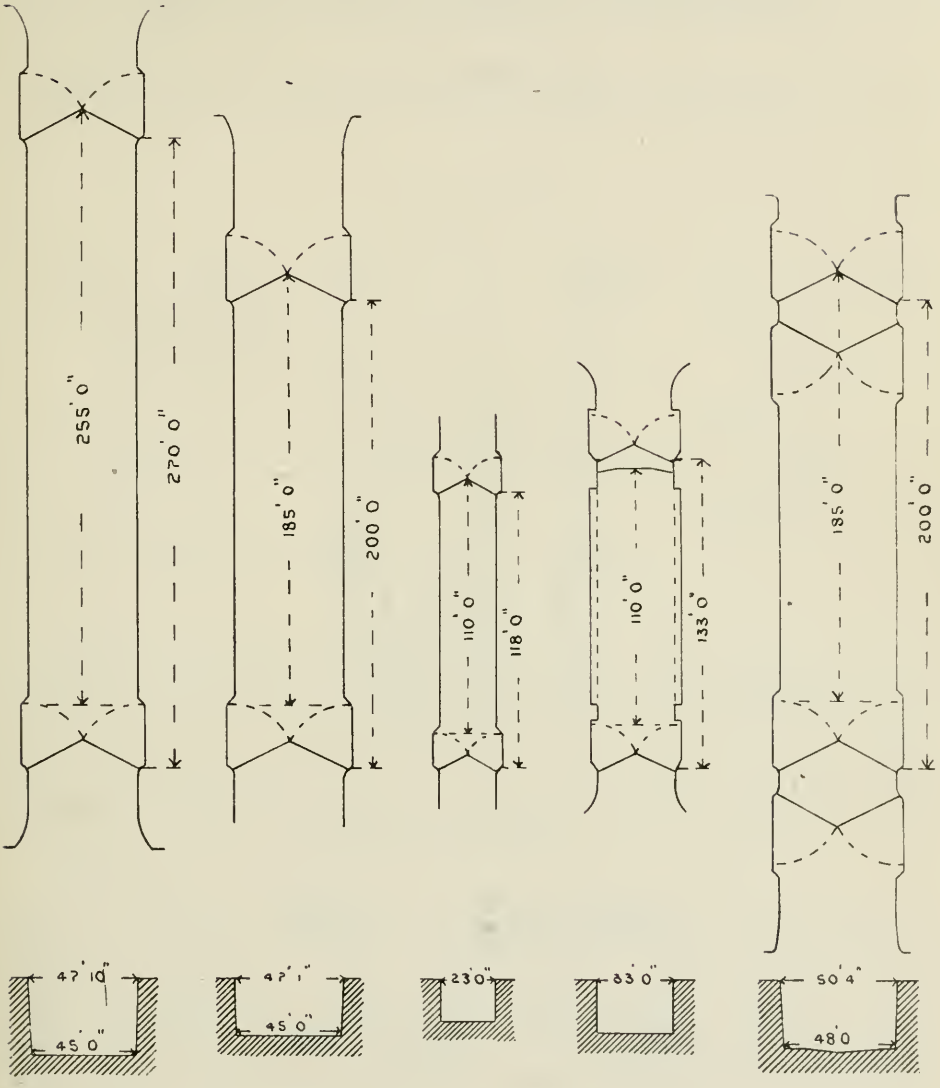
The road and rolling stock are in good running condition.

Plans and Sections showing the
on each of the Canadian Canal
Canal which is uncompleted.



There are no locks on the through
Montreal of less dimension than

dimensions of the smallest lock Systems Except the Trent

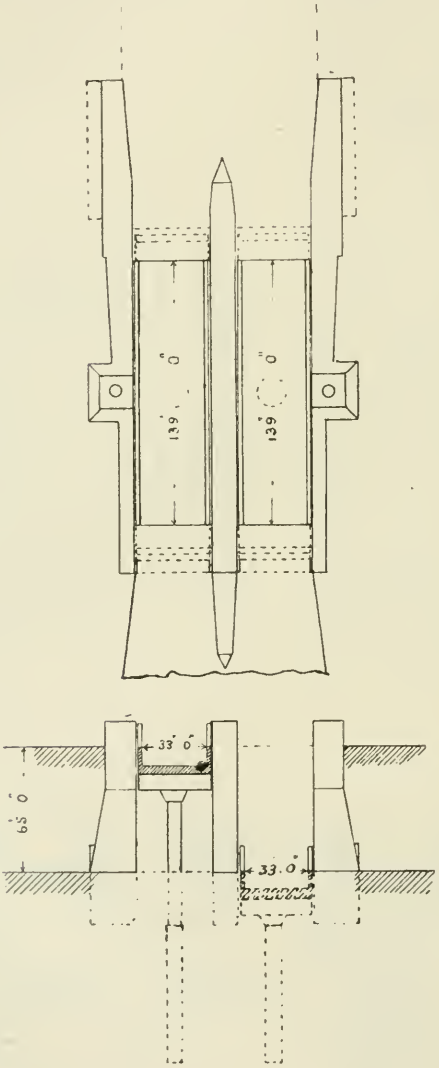


route between Lake Superior and those of the Welland Canal locks.

TRENT CANAL

Hydraulic Lift-Lock at Peterborough

65 Feet Lift.



CANALS.

The preceding diagrams of the locks on the Lachine, Soulanges, Welland and Sault Ste. Marie canals practically give the key to the whole navigation between Montreal and Lake Superior. There are no locks to be passed of less dimensions than those of the Welland canal.

The dimensions of the locks of the Beauharnois, Carillon and Grenville, St. Anne, Chambly, St. Ours, Rideau, Trent and St. Peter's are also shown.

CONSTRUCTION.

SOULANGES CANAL.

This canal extends from Coteau Landing to Cascades, a distance of 14 miles. The works of construction of this canal are completed.

Total expenditure up to June 30, 1905..	$6,886,174 48
Expended during the year ended June 30, 1906.. ..	5,000 22
Total expended up to June 30, 1906..	$6,891,174 70
Expended from June 30, 1906, to October 1, 1906.	549 47
Total expended up to October 1, 1906..	$6,891,724 17

There yet remains some further payments to be made.

SAULT STE. MARIE CANAL.

This canal is cut through St. Mary's island; it is 1½ miles in length. The depth of water on the mitre sill at low water is 20 feet 4 inches, 22 feet in the prism, 21 feet 5 inches in the lower entrance, with a minimum width of 315 feet. In the upper entrance there is only a depth of 18 feet of water at low water, but the work of deepening to 21 feet 5 inches is in progress. A contract was entered into with Mr. Boone to continue the work of deepening and widening, which, when completed, will give safe passage for vessels approaching and departing from the canal.

It having been found necessary to lengthen the entrance piers at each end of the canal, a contract has been entered into with Mr. Birmingham to extend south lower entrance pier 800 feet. The work is completed. For the extension of 800 feet to the south upper entrance pier, a contract has been entered into with O'Boyle Bros., which is nearing completion. When this work is brought to a finish the construction of the canal may be considered complete, unless, with a view to appearance of neatness and beauty, it is considered desirable to level up the grounds, lay them out in parterres, and plant them with trees and shrubs.

Total expenditure up to June 30, 1905..	$4,423,675 99
Expended from June 30, 1905, to June 30, 1906....	120,000 00
Total expended up to June 30, 1906..	$4,543,675 99
Expenditure from June 30, 1906, to October 1, 1906.	46,294 56
Total expenditure up to October 1, 1906..	$4,589,970 55

TRENT CANAL.

This canal is designed to extend from the waters of Lake Ontario to the Georgian bay on Lake Huron, at the mouth of the Severn river, the total distance being about 200 miles, of which 20 miles are canal and about 180 miles river and lake navigation.

Sections 1 and 2, on the Peterborough-Lakefield division, 9·61 miles, which were constructed by Messrs. Brown, Love & Aylmer and Messrs, Corry & Laverdure respectively, were opened for traffic on July 9, 1904, on which date the hydraulic lift lock at Peterborough was formally put in operation. The lift lock has a lift of 65 feet. It was fully described in the report of 1904.

The only work of construction at present being carried on is in connection with the completion of section No. 3, and the extra work on section 2, Simcoe-Balsam lake division, ordered, namely, the construction of a road and bridge along the fourth concession of Eldon and the construction of the steel work of the hydraulic lift lock at Kirkfield.

The contract for the steel for this hydraulic lift lock was awarded to the Dominion Bridge Company of Montreal, on February 15, 1905, and the work under this contract is proceeding. Eighty per cent is erected. The structural work is well under way.

Balsam-Simcoe Lake Division.

For section No. 1 Mr. Andrew Onderdonk was the contractor. He completed his contract some time ago, but as it is only a section of this division, it is only occasionally used, and has not been formally opened for public traffic. It is about six miles in length.

Section No. 2 is completed with the exception of the extra work in connection with the raising of a road along the fourth concession of the township of Eldon, which will be finished this fall. The concrete of the high level bridge is completed and the work of raising the road is well advanced and will be completed this season.

Section No. 3.—The contract for this section was awarded to Messrs. Brown & Aylmer on September 6, 1900. The work consists of constructing five concrete locks, three dams, three swing bridges, the necessary excavation, culverts, &c. All the concrete work with the exception of the closures in Nos. 1, 2, and 3 dams and a few other small items is completed. There is yet some excavation, both dry and dredging, to be done, also a considerable length of protection lining to lay, but the end of this season all the work should be completed.

To complete this canal, which is designed to extend from the Georgian bay to the waters of Lake Ontario, there remains to be placed under contract the section from Lake Simcoe to Georgian bay and the work between Heeley's falls and Lake Ontario waters.

The following is a statement of the expenditure made on the construction of this canal from its commencement up to October 1, 1906:—

Expended prior to June 30, 1867	$ 309,371 31
Expended subsequent to June 30, 1867, and June 30, 1894 (date of works contracted for)	782,584 88
Expended from June 30, 1894, to June 30, 1904	3,512,435 81
Total expenditure up to June 30, 1905	4,957,653 75
Expended from June 30, 1905, to June 30, 1906	319,789 49
Total expenditure up to June 30, 1906	$5,277,443 24
Expended from July 1, to October 1, 1906	41,411 72
Total expenditure to October 1, 1906	$5,318,854 96

ENLARGEMENT.

LACHINE CANAL.

This canal extends from Montreal to Lachine, a distance of 8½ miles. There are 5 lift locks, 270 x 45 feet, with 14 feet of water on the mitre sills, giving a total rise of 45 feet. There was a large amount of work performed in the way of repairs and renewals during the year. There were new plans prepared during the year, providing for the rebuilding of part of the slope walls in concrete. Messrs. Quinlan & Robertson secured the contract and the work was pushed vigorously as soon as the canal was unwatered. The work of dredging the basin, &c., was continued during the year. The total quantity of material excavated was about 12,000 cubic yards. Work on the installation of the electric machinery for the operation of lock gates, &c., was continued during the year.

The total expenditure for original construction from 1843 to 1848		$2,587,532 85
Expenditure in 1869		2,000 00
Total expenditure up to June 30, 1869		$2,589,532 85
Total expenditure for enlargement up to June 30, 1905	$8,885,578 80	
Expended in year ended June 30, 1906	103,798 28	
Total expenditure to June 30, 1906	$8,989,377 08	
Expended from June 30, 1906, to October 1, 1906	2,703 47	
Total expenditure for enlargement to October 1, 1906		$8,992,080 55
Total expenditure for construction and enlargement to October 1, 1906		$11,581,613 40

CORNWALL CANAL.

This canal extends from Cornwall to Dickenson's Landing, a distance of 11 miles, No special work done during the year.

FARRAN'S POINT CANAL.

This canal commences at Farran's Point and extends a mile westward. The work of enlargement on this canal is completed.

The total expenditure for construction and enlargement up to June 30, 1905, is	$877,090 57
Expended during yead ended June 30, 1906	Nil
Total expenditure up to October 1, 1906	$877,090 57

RAPIDE PLAT CANAL.

This canal extends from Morrisburg westward for a distance of 3⅔ miles.

A power plant is being constructed at the lock in the village of Morrisburg for manufacturing and lighting purposes.

The work of enlargement was completed on January 14, 1905.

Total expenditure up to June 30, 1905	$2,157,487 09
Expended during the year ended June 30, 1906	Nil
Total expenditure up to June 30, 1906	$2,157,487 09
Expended from June 30, 1905, to October 1, 1906	Nil
Total expenditure up to October 1, 1906	$2,157,487 09

GALOPS CANAL.

The works of enlargement of both the Iroquois section and the Cardinal section of this canal are completed, and the engineers are preparing the final estimates, the details of which, in order to meet the requirements of the Auditor General's office, are very voluminous.

The work on the upper entrance section, for which Messrs. Murray & Cleveland are the contractors, is drawing to a close, and will, it is confidently expected, be completed during the current year. A wharf was built at Cardinal.

Total expenditure on enlargement up to June 30, 1905	$5,819,923 75
Expended from June 30, 1905, to June 30, 1906	140,920 65
Total expenditure up to June 30, 1906	$5,960,844 40
Expended from June 30, 1906, to October 1, 1906	7,427 40
Total expenditure up to October 1, 1906	$5,968,271 80

WELLAND CANAL.

The trunk line extends from Port Dalhousie on Lake Ontario to Port Colborne on Lake Erie, a distance of 26¾ miles.

IMPROVEMENTS AT PORT COLBORNE.

Messrs. Hogan & McDonell are the contractors for this work. The condition of the works may be described as follows:—

The contractors have made some progress with the excavation in the new harbour. Mr. M. J. Hogan, under his contrack for 'New Docking along West Pier,' has made very good progress ; nearly all of the cribs being in place and a large portion of the concrete superstructure.

The foundations for the proposed elevator on Dock No. 2, under contract to Messrs. Larkin & Sangster, has been completed, and the filling around the piers has been put in place by Messrs. Hogan & McDonell.

Total expenditure up to June 30, 1905	$ 959,939 72
Expended from June 30, 1904, to June 30, 1906	250,019 38
Total expenditure up to June 30, 1906	$1,207,959 10
Expended from June 30, 1905, to June 30, 1906	250,019 38
Total expended up to October 1, 1906	$1,330,405 41

REMOVAL OF OBSTRUCTIONS AND IMPROVEMENTS.

The obstructions referred to are the pivot piers of the bridges in the centre of the canal. It is proposed each year, to tear down two or three of the old bridges and build new structures spanning the entire channel, until all the bridges have been rebuilt.

Six of these bridges have been replaced with modern structures, giving a clear channel 100 feet in width.

Other improvements of various kinds have been caried out.

Total expenditure up to June 30, 1905	$ 587,496 83
Expended from June 30, 1905, to June 30, 1906	68,967 38
Total expenditure up to June 30, 1906	$ 656,464 21
Expended from June 30, 1906, to October 1, 1906	Nil.
Total expenditure up to October 1, 1906	$ 656,464 21

DEEPENING PORTIONS OF LONG LEVEL.

This work is being executed by Magann & Phinn.

This deepening will give 17 feet at normal level and 15 feet at extreme low water ; the work is nearing completion.

Total expenditure up to June 30, 1905	$ 387,288 76
Expended from June 30, 1905, to June 30, 1906	105,000 00
Total expenditure up to June 30, 1906	$ 492,288 76
Expended from June 30, 1906, to October 1, 1906	40,674 35
Total expenditure up to October 1, 1906	$ 532,963 11

	Construction.	Enlargement.
Total expenditure up to June 30, 1905	$7,693,824 03	$18,386,542 10
Expended from June 30, 1905 to June 30, 1906		715,198 24
Total expenditure up to June 30, 1906		$19,101,740 34
Expended from June 30, 1906, to October 1, 1906		174,587 20
Total expenditure up to October 1, 1906		$19,276,327 54

ST. LAWRENCE RIVER AND LAKE IMPROVEMENTS.

GALOPS RAPIDS CHANNEL.

This work is being executed by the contractors, the Gilbert Blasting and Dredging Company.

Total expenditure up to June 30, 1905	$ 959,626 55
Expended from June 30, 1905, to June 30, 1906	26,506 26
Total expenditure up to June 30, 1906	$ 986,132 81
Expended from June 30, 1906, to October 1, 1906	4,575 03
Total expenditure up to October 1, 1906	$ 990,707 84

NORTH CHANNEL.

This channel is about 2½ miles in length, 300 feet wide, with 16 feet of water at low water.

It commences about one mile west of the upper entrance to the Galops canal, and runs in a direct line to deep water off Chimney Point.

The work also comprises the building of a dam from Adam's island to Galops (Ogden) island. These works are being executed by the contractor, Mr. M. A. Cleveland, and it is expected that they will all be completed this season, 1906.

Total expenditure up to June 30, 1905	$1,456,561 74
Expended from June 30, 1905, to June 30, 1906	83,028 98
Total expenditure up to June 30, 1906	$1,539,590 72
Expended from June 30, 1906, to October 1, 1906	21,140 00
Total expenditure up to October 1, 1906	$1,560,730 72

SESSIONAL PAPER No. 20

ST. LAWRENCE RIVER AND CANALS.

REDUCING SHOALS WEST OF CORNWALL CANAL.

The contemplated improvement of the river channel west of the upper entrance of the Cornwall canal has been completed by the removal of the following five shoals :—

Wagner's Island shoal.
Dawson's Point.
Archibald's Point.
Markell's Point.
Maxwell's shoal.

The removal of these shoals to a depth of 17½ feet of water, has materially improved the channel. It has changed the direction of the current, which, instead of flowing in the direction of the Long Sault as heretofore, has taken a direct course towards the entrance of the canal, a deviation which greatly advantages the navigation of the channel.

Total expenditure on river reaches to June 30, 1905	$ 483,830 20
Expenditure June 30, 1905, to June 30, 1906	7,435 85
Total expenditure to June 30, 1906	$ 491,266 05
Expended from June 30, 1906, to October 1, 1906	1,136 41
Total expenditure to October 1, 1906	$ 492,402 45

SUMMARY.

To summarize, I may state the cost of construction and enlargements of the canals and improvements to the river and lakes up to June 30, 1906, to be as follows, viz. :—

Route from Montreal to Port Arthur.

—	Original Construction of Canals.	Enlargement of Canals.	Improvement to St. Lawrence River and Lakes.	Total.
	$ cts.	$ cts.	$ cts.	$ cts.
Lachine Canal	2,589,532 85	8,989,377 08		11,578,909 93
Lake St. Louis			298,176 11	298,176 11
Soulanges Canal	6,891,174 70			6,891,174 70
Lake St. Francis			75,906 71	75,906 71
Cornwall Canal	1,945,624 73	5,266,006 09		7,211,630 82
Williamsburg Canal	1,320,655 54	10,676 26		
Farran's Point Canal		877,090 57		
Rapide Plat Canal		2,157,487 09		10,326,753 86
Galops Canal		5,960,844 40		
Galops Rapids			986,132 81	986,132 81
River Reaches			718,674 78	718,674 78
North Channel			1,539,590 27	1,539,590 27
Murray Canal	1,248,820 26			1,248,820 26
Welland Canal	7,693,824 03	19,101,740 34		26,795,564 37
Sault Ste. Marie Canal	4,543,675 99			4,543,675 99
Total	26,233,308 10	42,363,221 83	3,618,481 16	72,215,011 09

If to the above total there is added the cost of the Beauharnois canal—$1,636,690.26, now not required for navigation—the total expenditure is $73,851,701.35.

Route from Lachine to Ottawa.

—	Original Construction.	Enlargement.	Total.
	$ cts.	$ cts.	$ cts.
St, Anne's Lock	134,456 51	1,035,759 12	1,170,215 63
Carillon and Grenville Canals	63,053 64	4,119,039 32	4,182,092 96
Total	197,510 15	5,154,798 44	5,352,308 59

Construction by the Imperial Government is not included. Records relating to same were kept in Ordnance Office, Montreal, and were destroyed by fire in 1852.

Route from Ottawa to Kingston.

—	Original Construction.	Enlargement.	Total.
	$ cts.	$ cts.	$ cts.
Rideau Canal	4,085,889 21		4,085,889 21
Tay Canal	489,599 23		489,599 23
Total	4,575,488 44		8,575,488 44

Route from St. John, P.Q., to Sorel.

—	Original Construction.	Enlargement.	Total.
	$ cts.	$ cts.	$ cts.
Chambly Canal	637,056 76		637,056 76
St. Ours Lock	121,537 65		121,537 65
Total	758,594 41		758,594 41

Route from Lake Ontario to Georgian Bay.

—	Original Construction.	Enlargement.	Total.
	$ cts.	$ cts.	$ cts.
Trent Canal	5,277,443 24		5,277,443 24
Total	5,277,443 24		5,277,443 24

Route from Atlantic Ocean to Bras d'Or Lakes.

—	Original Construction.	Enlargement.	Total.
	$ cts.	$ cts.	$ cts.
St. Peter's Canal—Cape Breton	248,762 84	399,784 30	648,547 14
Total	248,762 84	399,784 30	648,547 14

The Culbute canal has been abandoned and the Beauharnois canal is no longer required for navigation purposes, but has to be maintained as a power canal.

The construction of these two canals cost:—

Culbute canal	$ 382,776 46
Beauharnois canal	1,636,690 26
Total	$2,019,466 72

MAINTENANCE AND OPERATION.

LACHINE CANAL.

Operation.

No interruption occurred to the traffic through this canal during the season of 1905.

Maintenance.

A very large amount of work was performed towards maintaining the canal in good order during the year.

The cost of repairs made during the year ended June 30, 1906, is as follows:—

Ordinary repairs under head of staff and repairs		$60,064 84
Special repairs under head of income—		
Rebuilding wharf below lock 1	$10,000 00	
Rebuilding wall, basin No. 2	34,369 55	
Building spare gates, lock 5	4,078 71	
Rebuilding portions of Lachine wharf	21,496 90	
Paving bridge approaches	14,600 00	
Gate lifter	5,188 43	
Walls St. Gabriel basin, No. 1	12,538 37	
To repair a leak from basin No. 1 to lock No. 1	24,757 24	
Raise roof of flour shed Nos. 4 and 5	6,489 57	
		$133,518 77
Total		$193,582 61

SOULANGES CANAL.

Operation.

The operation of this canal was conducted without interruption during the season of 1905. The cost of repairs made during the year ended June 30, 1906, is as follows:—

Ordinary repairs under head of staff and repairs....		$17,096 33
Special repairs under head of income—		
General repairs, including gasoline boat..	$14,834 64	
Repairs to slope, St. Amour's Gully.. ..	1,199 15	
		$16,033 79
Total..		$33,130 12

CORNWALL CANAL.

Operation.

No interruption occurred to the traffic through this canal during the season of 1905.

The canal is well lighted by electricity, and the lock gates, valves, weirs and bridges have continued to be operated most successfully by electrical power.

Maintenance.

The cost of repairs during the year ended June 30, 1906, is as follows:—

Ordinary repairs under the head of staff and repairs $31,893 13		
Special repairs under head of income—		
Cornwall—		
To rebuild wooden piers with concrete..	$2,324 33	
To fill in space between old and new locks at foot of canal	9,223 00	
To put in rip-rap facing of stone around 'The Point' between the locks..	8,516 46	
		20,063 79
Total		$51,956 92

WILLIAMSBURG CANALS.

Operation.

No interruption occurred in the traffic through these canals during the season of 1905.

Maintenance.

The cost of repairs during the year ended June 30, 1906, is as follows:—

Ordinary repairs under the head of staff and repairs		$16,148 66
Galops—		
To stop leak in bank	$18,783 00	
Williamsburg—		
Steam hoist and steam pump	1,200 00	
		19,983 00
Total		$36,131 66

WELLAND CANAL.

Operation.

The removal of the pivot piers from the centre of the canal, which is being done by degrees, is a great benefit to navigation, and is much appreciated by the transportation companies using the canal.

Maintenance.

The cost of repairs during the year ended June 30, 1906, is as mollows :—

Ordinary repairs under the head of staffs and repairs		$78,704 93
Special repairs under head of income—		
Welland—		
Stone protection to banks of new canal	$10,146 98	
To change valves and hanging gear of New Welland canal lock gates	14,995 03	
To build retaining wall in rock cut	2,550 15	
		27,692 16
Total		$106,397 09

SAULT STE. MARIE CANAL.

Operation.

No interruption to navigation occurred in this canal during the season.

During the season of 1905, there were 4,100 lockages, passing 5,185 registered craft and 475 unregistered vessels and scows, with a total tonnage of 5,059,251 tons; of this total tonnage 1,870,486 tons was of Canadian vessels, being an increase in this class of tonnage of 117,340 tons.

Maintenance.

The cost of repairs during the year ended June 30, 1906, is as follows:—

Ordinary repairs under the head of staff and repairs	$20,086 15

CHAMBLY CANAL.

The operation of this canal was conducted without interruption during the season of 1905.

Maintenance.

The cost of repairs during the year ended June 30, 1906, is as follows:—

Ordinary repairs under head of staff and repairs.....		$25,173 48
Special repairs under head of income—		
Renewing bridge No. 3	$3,598 97	
To strengthen banks.	5,998 99	
To macadamiz road west side of canal....	6,594 69	
To macadamize tow path	10,000 07	
		26,192 65
Total.		$51,366 13

ST. OURS LOCK AND DAM.

Operation.

There was no interruption to navigation on this canal during the season of 1905.

Maintenance.

The cost of repairs during the year ended June 30, 1906, was as follows:—

Ordinary repairs under the head of staff and repairs....		$3.872 75
Special repairs under head of income—		
New boom piers and booms.	$7,307 39	
		$7,307 39
Total.		$11,180 14

STE. ANNE'S LOCK.

Operation.

There was no interruption to navigation on this lock during the season of 1905.

Maintenance.

The cost of repairs during the year ended June 30, 1906, is as follows:—

Ordinary repairs under the head of staff and repairs. .	$2,294 86

CARILLON AND GRENVILLE CANALS.

Operation.

There was no interruption to navigation on these canals during the season of 1905.

Maintenance.

The cost of repairs during the year ended June 30, 1906, is as follows:—

Ordinary repairs under the head of staff and repairs..	$10,924 72
Special repairs under head of income—	
Repairs to guide piers, Greece's Point..	$ 4,659 74
Building new lighthouse..	185 01
Rebuilding Grenville wharf..	19,034 58
Total..	$34,804 05

BEAUHARNOIS CANAL.

Operation.

This canal is only being used by a few market boats and barges. The staff has been reduced to one man at each lock and isolated bridge, and three men in charge of ferries.

Maintenance.

The cost of repairs during the year ended June 30, 1906, is as follows:—

Ordinary repairs under head of staff and repairs.. ..	$18,640 71
Special repairs under head of income—	
Completing St. Barbe dyke..	599 85
Rebuilding weir at Valleyfield..	1,931 39
	$21,171 95

MURRAY CANAL.

Operation.

There was no interruption to navigation on this canal during the season of 1905.

Maintenance.

The cost of repairs during the year ended June 30, 1906, is as follows:—

Ordinary repairs under the head of staff and repairs..	$2,840 91
Special repairs under head of income—	
To rebuild piers wth concrete, east end..	293 75
Total..	$3,134 66

RIDEAU CANAL.

Operation.

There was no interruption to navigation on this canal during the season of 1905.

Maintenance.

The cost of repairs during the year ended June 30, 1906, is as follows:—

Ordinary repairs under the head of staff and repairs..	$54,495 63
Special repairs under head of income—	
To rebuild retaining walls at foot of locks, Ottawa ..	4,997 90
To provide ferry scow..	275 00
Total..	$59,768 53

TRENT CANAL.

Operation.

There was no interruption to navigation on this canal during the season of 1905.

Maintenance.

The cost of repairs during the year ended June 30, 1906, is as follows :—

Ordinary repairs under the head of staff and repairs....		$ 33,398 85
Special repairs under the head of income :—		
TRENT—		
Improvements..	$ 14,522 31	
Repairs to guard gates..	1,730 80	
Repairs and renewals to Trent and Bensfort bridges..	4,585 33	
One dredging engine, boiler and steel boom, and completion dredge..	4,500 00	
To complete dump scows..	691 92	
Contribution towards construction of a road across McLaren's creek..	Nil.	
		25,030 36
		$58,429 21

ST. PETER'S CANAL.

Operation.

There was no interruption to navigation on this canal for the season of 1905.

Maintenance.

The cost of repairs during the year ended June 30, 1906, as follows :—

Ordinary repairs under the head of staff and repairs	$ 253 65

CULBUTE CANAL.

This canal has been abandoned for navigation purposes.

Summary.

Cost of maintenance and operation of the canal system for the year ended June 30, 1906	$1,250,612 89
Net revenue of canals after deducting refunds	78,009 21
Excess of cost of maintenance and operation over revenue	$1,172,603 68

TABLE showing the dates of opening and closing of the canals for the season of 1905-06.

Name of Canal.	Navigation opened 1906.	Navigation closed 1905.
Lachine	April 29	December 2
Soulanges	" 23	....
Cornwall	" 17	December 7
Farran's Point	" 17	" 7
Rapide Plat	" 17	" 7
Galops	" 17	" 7
Murray	" 14	" 6
Welland	" 16	" 16
Sault Ste. Marie	" 14	" 20
Grenville	" 30	November 30
Carillon	" 30	" 30
Ste. Anne's	" 19	" 30
Chambly	May 1	" 30
St. Ours	April 18	" 29
Rideau { At Ottawa	" 28	" 29
Rideau { At Kingston	" 30	" 29
Trent	" 10	December 26
Beauharnois	May 1	November 30
St. Peter's	April 23	January 9

CANAL STATISTICS.

These statistics are for the season of 1905, they have, as usual, been prepared by Mr. R. Devlin, the officer in charge of the canal statistics office.

TABLE showing the tons of freight passing through each canal, the number of trips of vessels passing through each canal for the season ended December, 1905.

Name of Canal.	Tons of Freight passed through	No. Tolls charged.	No. of Trips of Vessels passing through.
Welland	1,092,050	157,478 61	1,595
St. Lawrence	1,752,855	128,610 73	9,996
Chambly	447,069	28,391 88	3,343
Ottawa	390,771	28,949 43	2,152
Rideau	59,864	5,589 43	4,715
S. Peter's	81,077	2,911 96	1,595
Trent	29,421	1,309 13	2,046
Murray	45,231	1.205 89	707
Sault Ste. Marie	5,473,406	No tolls.	5,662

GENERAL REMARKS.

For details as regards the subjects treated in this report, I refer you to the reports of the officers in charge of the government railways and canals, which form appendices hereto.

RAILWAY SUBSIDIES.

The subsidies voted for railways, as stated in previous annual reports, are in such a form that it is not possible to show the amount of cash subsidy granted, as the amount of subsidy will, in many cases, be based upon the cost of each road. For this reason it is not possible to give the amount of each subsidy available ; but, the amount paid will be shown in the statements in Paris 1 and 2, also the number of miles of railway for which subsidy is granted per mile, which was available, and the number of miles of railway built up to July 1, 1906, for which cash subsidy per mile was granted. There will also be found the amount of subsidy per annum paid up to July 1, 1906, with the number of miles built.

CANAL STATISTICS.

These statistics are for the season of 1905. They have been prepared by Mr. R. Devlin, the officer in charge of the canal statistics.

COMPARATIVE Statement, for seasons of 1905 and 1904, showing the amounts that would have been collected had not the canals been made free.

Name of Canal.	Season of 1905.	Season of 1904.
	$ cts.	$ cts.
Welland Canal	157,478 61	117,562 01
St. Lawrence Canals	128,610 73	111,726 25
Chambly Canal	28,391 88	27,451 87
Ottawa Canal	28,949 43	22,244 72
Rideau Canal	5,589 43	4,804 98
St. Peter's Canal	2,911 96	2,745 75
Trent Canal	1,309 13	1,333 15
Murray Canal	1,205 89	1,097 82
Sault Ste. Marie Canal	No tolls.	No tolls.
Total	354,447 06	288,966 55

COMPARATIVE Statement of Tons of freight which passed through the canals in seasons of 1904 and 1905.

Name of Canal.	Season of 1905.	Season of 1904.	Number of trips of vessels passing through	
			Season of 1904.	Season of 1905.
Welland Canal	1,092,050	811,371	1,433	1,595
St. Lawrence Canals	1,752,855	1,427,316	8,678	9,996
Chambly Canal	447,069	448,187	3,475	3,343
Ottawa Canal	390,771	335,993	1,805	2,152
Rideau Canal	59,864	55,120	4,042	4,715
St. Peter's Canal	81,077	73,416	1,654	1,595
Trent Canal	29,421	45,689	2,287	2,046
Murray Canal	45,231	28,439	768	707
Sault Ste. Marie Canal	5,473,406	5,030,705	3,962	5,662
Total	9,371,744	8,256,236	28,104	31,811

SUMMARY of Tables of Steam Railways for the years ended June 30, 1905, and June June 30, 1906.

	June 30, 1905, Steam Railways only.	June 30, 1906, Steam Railways only.
Miles of railway completed (track laid)	20,601	21,518
" sidings	3,632	4,085
" iron rails in main line	68	74
" steel rails	20,533	21,444
" " (double track)	838	878
Capital paid (including the 4 following items)	1,248,666,414	1,332,498,705
Government (Dominion and Provincial) bonuses paid	208,208,070	216,853,117
" " " loans paid	20,613,489	20,613,489
" (Provincial only) subscriptions to shares paid	300,000	300,000
Municipal aid paid	17,198,211	17,125,164
Miles in operation	20,487	21,353
Gross earnings	106,467,199	125,322,865
Working expenses	79,977,574	87,129,434
Net earnings	26,489,625	38,193,431
Passengers carried	25,288,723	27,989,782
Freight carried (tons)	50,893,957	57,966,713
Train mileage	65,934,114	72,723,482
Passengers killed	35	16
Number of elevators	281	320
" highway crossings at rail-level, with watchman	222	203
" " " without watchman	13,746	12,962
" overhead bridges, highway crossings over railway	472	431
" highway crossings under railway	329	336
" farm " " "	251	394
" level crossings of other railways	295	315
" junction with other railways	390	374
" " branch lines	234	265
" engines owned	2,808	2,911
" " hired	98	20
" sleeping cars owned	169	216
" " hired	25	19
" parlor cars owned	41	92
" " hired	4	4
" dining cars owned	58	75
" " hired	5	5
" official cars owned	64	61
" first class cars owned	1,195	1,243
" " hired	90	46
" second class and immigrant cars owned	680	715
" " " hired	3	1
" baggage, mail and express cars owned	784	838
" " " hired	12	4
" refrigerator cars owned	1,455	1,487
" " hired	56	168
" cattle and box freight cars owned	55,060	61,081
" " " hired	2,169	848
" platform cars owned	18,348	18,496
" " hired	321	29
" coal cars owned	8,552	8,287
" " hired	235	8
" conductors' vans owned	1,363	1,416
" " hired	15	6
" tool cars owned	802	1,325
" " hired	4	
" snow ploughs owned	319	340
" " hired		1
" flangers owned	202	199
" " hired		6
" other rolling stock	*2,126	2,868
Included in the above there are the following:		
Number of cars with air brakes owned	75,429	85,616
" " " hired	2,749	826
" " with automatic couplers owned	82,122	91,015
" " " " hired	3,259	167

* Includes steam cranes, steam shovels, derricks, boarding cars, pile drivers, &c.

SESSIONAL PAPER No. 20

SUMMARY of Tables of Electric Railways for the years ended June 30, 1905, and June 30, 1906.

	Comparative Statement.	
	June 30, 1905.	June 30, 1906.
Miles of railway completed (track laid)	793	814
" sidings	35	45
" iron rails in main line	25	3
" steel " "	768	811
" " " double track	186	195
Capital paid (including the 3 following items)	61,033,321	63,857,970
Government (Dominion and Provincial) bonuses paid	60,800	60,800
Municipal aid paid	173,000	173,000
Miles in operation	793	814
Gross earnings	9,357,125	10,966,872
Working expenses	5,918,194	6,675,038
Net earnings	3,438,931	4,291,834
Passengers carried	203,467,317	237,655,074
Freight carried (tons)	510,350	506,024
Car mileage	45,959,101	50,618,836
Passengers killed	30	12
Number of highway crossings at rail-level with watchman	10	14
" " " without watchman	273	288
" overhead bridges highway crossings over railway	26	28
" highway crossings under railway	9	9
" farm crossings under railway	2	2
" level crossings of other railways	117	124
" junctions with "	46	46
" " branch lines	11	13
" power-houses (steam power) owned	38	41
" " " hired		
" " (water-power) owned	10	12
" " " hired	3	3
" passenger cars (motor) owned	2,278	2,389
" " " hired		
" " (trailers) owned	260	266
" official cars owned	3	3
" locomotives owned	12	11
" baggage, mail and express cars owned	13	15
" cattle and box freight cars owned	14	20
" platform cars owned	66	80
" tool cars owned	15	13
" snow ploughs owned	39	43
" snow sweepers owned	77	89
" other rolling stock owned	21	*21

* Includes 2 Conductor's vans, 3 coal and dump cars and 16 refrigerator cars.

RAILWAYS

DISTANCES OF THROUGH RAILWAY ROUTES

FROM THE

ATLANTIC TO THE PACIFIC.

LENGTHS OF THE GOVERNMENT RAILWAYS.

CANALS

LENGTHS AND LOCATIONS OF THE DOMINION CANALS AND THE INTERMEDIATE WATERS

WITH THE

DIMENSIONS OF LOCKS.

MAPS

RAILWAYS.

The following shows the several routes of railway giving through communication between the Atlantic and Pacific coasts:—

The routes available between Halifax and Montreal are four in number, in all of which the Intercolonial is used, either in whole or in part, as follows:—

Halifax to Montreal.

	Miles.
1. Intercolonial Railway, via Lévis, to Montreal	837
2. Intercolonial Railway to St. John	275
Canadian Pacific Railway, from St. John to Montreal	480
Total	755
3. Intercolonial Railway to St. John	275
Canadian Pacific Railway, from St. John to Vanceboro'	90
Main Central Railway, from Vanceboro' to Danville Junction	224
Grand Trunk Railway, from Danville Junction to Montreal	270
Total	859
4. Intercolonial Railway to St. John	275
Canadian Pacific Railway from St. John to Edmundston	170
Temiscouata Railway, from Edmundston to Rivière du Loup	81
Intercolonial Railway, from Rivière du Loup to Montreal	278
Total	804

St. John to Montreal.

1. Intercolonial Railway, via Lévis, to Montreal	740
2. Canadian Pacific Railway to Montreal	480
3. Canadian Pacific Railway to Edmundston	170
Temiscouata Railway, from Edmundston to Rivière du Loup	81
Intercolonial Railway, from Rivière du Loup to Montreal	278
Total	529

MONTREAL, OR QUEBEC, TO THE PACIFIC OCEAN.

Montreal to Vancouver.

	Miles.
1. Canadian Pacific Railway to Vancouver	2,906
Canadian Pacific Railway from North Bay to Vancouver	2,546
2. Grand Trunk Railway to North Bay	560
Total	3,102

Quebec to Vancouver.

	Miles.
1. Canadian Pacific Railway to Vancouver	3,052
2. Intercolonial Railway to Montreal	162
Canadian Pacific Railway from Montreal to Vancouver	2,906
Total	3,068
3. Grand Trunk Railway to Montreal	172
Canadian Pacific Railway from Montreal to Vancouver	2,906
Total	3,078
4. Grand Trunk Railway to North Bay	732
Canadian Pacific Railway from North Bay to Vancouver	2,542
Total	3,274

The Canadian Pacific Railway was opened for through traffic on June 28, 1886.

INTERCOLONIAL RAILWAY.

The Intercolonial Railway touches six Atlantic ocean ports, namely, Point du Chene, Pictou, Halifax, St. John, Sydney and North Sydney, as well as the ports of Quebec and Montreal on the River St. Lawrence.

The total length of the road operated during the year ended June 30, 1906, was 1,445·95 miles, and for freight branches 12·50 miles, making a total of 1,457·42 miles.

The following are the through distances:—

	Miles.
Halifax to Montreal, via Lévis	837
St. John to Montreal, via Lévis	740
Sydney to Montreal, via Lévis	990
North Sydney to Montreal, via Lévis	983

Freight carried direct via St. Henri to Montreal, which would reduce each of the above distances by 3 miles.

WINDSOR BRANCH.

This road extends from Windsor Junction, on the Intercolonial Railway, to Windsor, a distance of 32 miles.

PRINCE EDWARD ISLAND RAILWAY.

LENGTH OF LINE.

	Miles.
Souris to Tignish	166
Mount Stewart to Georgetown	24
Charlottetown to Royalty Junction	5
Emerald Junction to Cape Traverse	13
Alberton to Cascumpec wharf	1
Charlottetown to Murray Harbour	52·3
	261

Communication between the Prince Edward Island Railway and the Intercolonial Railway is afforded in summer by steamer between Summerside and Point du Chene, between Charlottetown and Pictou and between Georgetown and Pictou, and in winter by specially built steamers between Georgetown and Pictou and between Charlottetown and Pictou. There is also further provision made for communication by ice boats between Cape Traverse on Prince Edward Island and Cape Tormentine on the mainland, a distance of about 9 miles, at which latter place connection is made with the New Brunswick and Prince Edward Island Railway, about 40 miles in length, connecting with the Intercolonial Railway at Sackville. This winter service across the Straits of Northumberland is efficiently worked by the Marine and Fisheries Department.

CANALS.

The following statements give in concise form the essential features of the government canal works and the intermediate water navigation:—

The canal systems of the Dominion, under government control in connection with lakes and navigable rivers, are as follows:—

First.—The through route between Montreal and the head of Lake Superior (14 feet minimum depth of water.)

	Miles.
1. Lachine Canal	8½
Lake St. Louis and River St. Lawrence	16
2. Soulanges Canal	14
Lake St. Francis and River St. Lawrence	33
3. Cornwall Canal	11
River St. Lawrence	5
4. Farran's Point Canal	1
River St. Lawrence	10
5. Rapide Plat Canal	3½
River St. Lawrence	4
6. Galops Canal	7¼
River St. Lawrence and Lake Ontario	236
7. Welland Canal	26¾
Lake Erie, Detroit River, Lake St. Clair, Lake Huron, &c.	580
8. Sault Ste. Marie Canal	1¼
Lake Superior to Port Arthur	266
Total	1,223¼
To Duluth	1,357
Chicago	1,286

Second.—Ottawa to Lake Champlain.

1. Grenville. 2. Carillon. 3. St. Anne's. 4. Chambly. 5. St. Ours Canals.

Third.—Ottawa to Kingston and Perth.

1. Rideau Canal.

Fourth.—Lake Ontario at Trenton to Lake Huron at mouth of River Severn.

1. Trent Canal (not completed).

Fifth.—Ocean to the Bras d'Or Lakes.

1. St. Peter's Canal.

RIVER ST. LAWRENCE AND LAKES.

The River St. Lawrence, with the system of canals established on its course above Montreal, and the Lakes Ontario, Erie, St. Clair, Huron and Superior, with connecting canals, afford a course of water communication extending from the Straits of Belle Isle to Port Arthur, at the head of Lake Superior, a distance of 2,200 statute miles. The distance to Duluth is 2,343 miles. The distance to Chicago, 2,272 miles.

From the Straits of Belle Isle, at the mouth of the St. Lawrence, to Montreal, the distance is 986 miles. From Quebec to Montreal, the distance is 160 miles. Owing to the shallowness of the waters on a portion of the river between these two places, particularly through Lake St. Peter, vessels drawing more than from ten to twelve feet were formerly barred from passage for the greater part of the season of navigation. In 1826, the question of deepening the channel was first definitely mooted, but it was not until 1844 that any dredging operations were begun. In that year, the deepening of a new straight channel was commenced, but the scheme was abandoned in 1847. In 1851 the deepening of the present channel was begun. At that time the depth of the channel at low water was 10 feet 6 inches. By the year 1869, this depth had been increased to 20 feet, by 1882 to 25 feet, and by the close of 1888 the depth of 27½ feet, at low water, was attained for a distance of 108 miles from Montreal to a point within tidal influence. This work is now being continued by the government of Canada, which in 1888, under the provisions of the Act 51 Vic., ch. 5, of that year, assumed the indebtedness. The channel has a minimum width of 300 feet, extending to 550 feet at points of curvature. The channel is lighted and buoyed.

Navigation, which is closed by ice during the winter months, opens about the end of April.

Montreal has by this work been placed at the head of ocean navigation, and here the canal systems of the River St. Lawrence begin, overcoming the various rapids by which the river channel upwards is obstructed, and giving access through the St. Lawrence canals, the Welland canal, the great lakes and the Sault Ste. Marie canal, to the head of Lake Superior.

The difference in level between the point on the St. Lawrence, near Three Rivers, where tidal influence ceases, and Lake Superior, is about 600 feet.

The Dominion canals, constructed between Montreal and Lake Superior, are the Lachine, Soulanges, Cornwall, Farran's Point, Rapide Plat, Galops, Murray, Welland and Sault Ste. Marie. Their aggregate length is 73 miles; total lockage (or height directly overcome by locks), 551 feet. The number of locks through which a vessel would pass in its passage from Montreal, at the head of ocean navigation, to the head of Lake Superior is 48. The Soulanges canal takes the place of the Beauharnois canal; the latter may be abandoned for navigation purposes.

Communication between Lakes Huron and Superior is obtained by means of the Canadian Sault Ste. Marie canal, and also by the St. Mary's Falls canal, situated on the United States side of the River St. Mary. Both these canals are free of toll.

The improvement of the United States channels in St. Mary's river has been continued from year to year, so that the dredged areas now total 34 miles in length, with a minimum width of 300 feet, which is increased at angles and other critical points to 1,000 feet. The depth is 20 feet at the mean stage of water. Excavation has now been commenced to afford 21 feet at the lowest stage of water.

It is important to note that the enlargement of the canals on the main route between Montreal and Lake Erie comprises locks of the following minimum dimensions: Length, 270 feet; width, 45 feet; depth of water on sills, 14 feet. The length of the vessels to be accommodated is limited to 255 feet. At Farran's, in the canal of

that name, the lock is 800 feet long. A similar lock is built at Iroquois on the Galops canal, the object being to pass a full tow at one lockage.

LACHINE CANAL

Length of canal	8½ statute miles
Number of locks	5
Dimension of locks	270 feet by 45 feet.
Total rise or lockage	45 feet.
Depth of water on sills, at two locks	18 "
Depth of water on sills, at three locks	14 "
Average width of new canal	150 "

The old lift locks, 200 feet by 45 feet, are still available, with 9 feet of water on mitre sills.

The canal consists of one channel, with two distinct systems of locks, the old and the enlarged. There are two lock entrances at each end.

The canal extends from the city of Montreal to the town of Lachine, overcoming the St. Louis rapids, the first of the series of rapids which bars the ascent of the River St. Lawrence. They are 986 miles distant from the Straits of Belle Isle.

SOULANGES CANAL.

Length of canal	14 statute miles.
Number of locks { lift	4
Number of locks { guard	1
Dimensions of locks	280 feet by 45 feet.
Total rise or lockage	84 feet.
Depth of water on sills	15 "
Breadth of canal at bottom	100 "
Breadth of canal at water surface	164 "
Number of arc lights	219 of 2,000 c.p. each.

The canal extends from Cascade Point to Coteau Landing, overcoming the Cascade Rapids, Cedar Rapids and Coteau Rapids.

From the head of the Lachine to the foot of the Soulanges the distance is sixteen miles.

CORNWALL CANAL.

Length of canal	11 statute miles.
Number of locks	6
Dimension of locks	270 feet by 45 feet.
Total rise or lockage	48 feet.
Depth of water on sills	14 "
Breadth of canal at bottom	100 "
Breadth of canal at water surface	164 "
Number of arc lights	350

The old lift locks, 200 feet by 45 feet, are also available, with nine feet of water on mitre sills.

From the head of the Soulanges to the foot of the Cornwall canal there is a stretch through Lake St. Francis, 38¾ miles, which is being made navigable for vessels drawing fourteen feet.

The Cornwall Canal extends past the Long Sault Rapids from the town of Cornwall to Dickenson's Landing.

WILLIAMSBURG CANALS.

The Farran's Point, Rapide Plat and Galops canals are collectively known as the Williamsburg canals.

FARRAN'S POINT CANAL.

Length of canal	1 mile.
Number of locks	1
New lock	800 feet by 45 feet.
Old lock	200 "
Total rise of lockages	3½ feet.
Depth of water on sills of new lock	14 "
Depth of water on sills of old lock	9 "
Breadth of canal at bottom	90 "
Breadth of canal at water surface	154 "

From the head of the Cornwall canal to the foot of Farran's Point canal, the distance on the River St. Lawrence is five miles. The latter canal enables vessels ascending the river to avoid Farran's Point rapid, passing the full tow at one lockage. Descending vessels run the rapids with ease and safety.

RAPIDE PLAT CANAL.

Length of canal	3⅔ miles.
Number of locks	2
Dimensions of locks	270 feet by 45 feet.
Total rise or lockage	11½ feet.
Depth of water on sills	14 "
Breadth of canal at bottom	80 "
Breadth of canal at surface water	152 "

The old lift lock, 200 feet by 45, is also available, with nine feet of water on mitre sills.

From the head of Farran's Point canal to the foot of Rapide Plat canal, there is a navigable stretch of 10½ miles. The canal was formed to enable vessels ascending the river to pass the rapids at that place. Descending vessels run the rapids safely.

GALOPS CANAL.

Length of canal	7⅛ miles.
Number of locks	3
Dimension of locks, one of which is a guard-lock	1-800 by 45. 2-270 by 45.
Total rise or lockage	15½ feet.
Depth of water on sills	14 "
Breadth of canal at bottom	80 "
Breadth of canal at surface of water	144 "

From the head of Rapide Plat canal to Iroquois, at the foot of the Galops canal, the St. Lawrence is navigable 4½ miles. The canal enables vessels to overcome the rapids at Pointe aux Iroquois, Port Cardinal and the Galops.

MURRAY CANAL.

Length between eastern and western pier heads	5⅛ miles.
Breadth at bottom	80 feet.
Breadth at water surface	126 "
Depth below lowest known lake level	11 "
No locks.	

This canal extends through the Isthmus of Murray, giving connection westward between the head waters of the Bay of Quinte and Lake Ontario, and thus enabling vessels to avoid the open lake navigation.

WELLAND CANAL.

Main line from Port Dalhousie, Lake Ontario, to Port Colborne, Lake Erie.

	Old Line.	Enlarged on New Line.
Length of canal	27½ miles.	26¾ miles.
Pairs of guard-gates (formerly 3).		2
Number of locks. guard	26	25
Number of locks. lift	1	1
Dimensions	1 (tidal) 230 x 45 1 lock 200 x 45 1 lock 200 x 45 24 locks 150 x 45	270 feet x 45 feet.
Total rise or lockage	326¾ feet.	326¾ feet.
Depth of water on sills	10¼ "	14 "

WELLAND RIVER BRANCHES.

Length of canal—

Port Robinson Cut to River Welland	2,622 feet.
From the canal at Welland to the river, via lock at Aqueduct	300 feet.
Chippewa Cut to River Niagara	1,020 feet.

Number of locks—one at Aqueduct and one at Port Robinson	2
Dimensions of locks	150 by 26½ feet.
Total lockage from the canal at Welland down to River Welland	10 feet.
Depth of water on sills	9 feet 10 inches.

GRAND RIVER FEEDER.

Length of canal	21 miles.
Number of locks	2
Dimensions of locks	1 of 150 by 26½ feet. 1 of 200 by 45 feet.
Total rise or lockage	7 to 8 feet.
Depth of water on sills	9 feet.

PORT MAITLAND BRANCH.

Length of canal	1¾ miles.
Number of locks	1
Dimensions of locks	185 feet by 45 feet.
Total rise or lockage	7½ feet.
Depth of water sills	11 feet.

The Welland canal has two entrances from Lake Ontario, at Port Dalhousie, one for the old, the other for the new canal.

From Port Dalhousie to Allanburg, 11¾ miles, there are two distinct lines of canal in operation, the old line and the enlarged or new line.

From Allanburg to Port Colborne, a distance of 15 miles, there is only one channel, the old canal having been enlarged.

From the head of the Welland canal there is a deep water navigation through Lake Erie, the Detroit river, Lake St. Clair, the St. Clair river, Lake Huron and River St. Mary to the Sault canal, a distance of about 580 miles. From the Sault the distance through Lake Superior to Port Arthur is 266 miles, and to Duluth 400 miles.

SAULT STE. MARIE CANAL.

Length of canal, between the extreme ends of the entrance piers	5,967 feet.
Number of locks	1
Dimensions of locks	900 feet by 60 feet.
Depth of water on sills (at lowest known water level)	20 feet 3 inches.
Total rise or lockage	18 feet.
Breadth of canal at bottom	141 feet 8 inches.
Breadth of surface of water	150 feet.

This canal has been constructed through St. Mary's Island, on the north side of the rapids of the River St. Mary, and, with that river, gives communication on Canadian territory between Lakes Huron and Superior.

MONTREAL, OTTAWA AND KINGSTON.

This route extends from the harbour of Montreal to the port of Kingston, passing through the Lachine canal, the navigation section of the lower River Ottawa, and the Ottawa canals, to the city of Ottawa; thence by the River Rideau and the Rideau canal to Kingston, on Lake Ontario—a total distance of 245⅝ miles.

After leaving the Lachine canal the works constructed to overcome difficulties of navigation are:—

Ottawa River Canals.

The Ste. Anne's Lock.	Grenville Canal.
Carillon Canal.	Rideau Canal.

The total lockage (not including that of the Lachine canal) is 509 feet—(345 rise, 164 fall)—and the number of locks is 55.

The following table exhibits the intermediate distances from Montreal harbour:—

Sections of Navigation.	Intermediate Distance.	Total Distance from Montreal.
	Miles.	Miles.
The Lachine canal	8½	
From Lachine to Ste. Anne's lock	15	23
Ste. Anne's lock and piers	⅛	23
Ste Anne's lock to Carillon canal	27	50
The Carillon canal	¾	51
From Carillon to Grenville canal	6¼	57
The Grenville canal	¾	63
From the Grenville canal to entrance of Rideau navigation	56	119
Rideau navigation ending at Kingston	126¼	245

STE. ANNE'S LOCK.

	New Lock.	Old Lock.
Length of canal	⅛ mile.	⅛ mile.
Number of locks	1	1
Dimensions of locks	200 x 45 feet.	190 x 45 feet.
Total rise or lockage	3 feet.	3 feet.
Depth of sills	9 "	6 "

This work, with guide piers above and below, surmounts the Ste. Anne's rapids between Ile Perrot and the head of the Island of Montreal, at the outlet of that portion of the River Ottawa which forms the Lake of Two Mountains, 23½ miles from Montreal harbour.

THE CARILLON CANAL.

Length of canal	$\frac{3}{4}$ mile.
Number of locks	2
Dimensions of locks	200 x 45 feet.
Total rise or lockage	16 feet.
Depth of water on sills	9 "
Breadth of canal at bottom	100 "
Breadth of canal at water surface	110 "

This canal overcomes the Carillon rapids.

From Ste. Anne's lock to the foot of the Carillon canal there is a navigable stretch of 27 miles, through the Lake of Two Mountains and the River Ottawa.

By the construction of the Carillon dam across the River Ottawa the water at that point is raised 9 feet, enabling the river above to be used for navigation.

GRENVILLE CANAL.

Length of canal	$5\frac{3}{4}$ miles.
Number of locks	5
Dimensions of locks	200 x 45 feet.
Total rise or lockage	$43\frac{3}{4}$ feet.
Depth of water on sills	9 "
Breadth of canal at bottom	40 to 50 feet.
Breadth of canal at surface of water	50 to 80 "

This canal, by which the Long Sault rapids are avoided, is about 56 miles below the city of Ottawa, up to which point the River Ottawa affords unimpeded navigation.

RIDEAU NAVIGATION.

The Rideau system connects the River Ottawa at the city of Ottawa, with the eastern end of Lake Ontario, at Kingston.

Length of navigation waters	$126\frac{1}{4}$ miles.
Number of locks going from Ottawa to Kingston	35 ascending. 14 descending.
Total lockage $446\frac{1}{4}$ feet	$282\frac{1}{4}$ rise and 164 fall at high water.
Dimensions of locks	134 x 33 feet.
Depth of water on sills	5 feet.
Navigation depth through the several reaches	$4\frac{1}{2}$ "
Breadth of canal reaches at bottom	60 feet in earth. 54 feet in rock.
Breadth of canal at surface of water	80 feet in earth.

PERTH BRANCH.

Length of canal	6	miles.
Number of locks	2	
Dimensions of locks	134 feet	x 32 feet.
Total rise or lockage	26 "	
Depth of water on sills	5 "	6 inches
Length of dam	200 "	
Breadth of canal at bottom	40 "	
Breadth of canal at surface at water	60 "	in clay.
	40 "	in rock.

The Perth branch of the Rideau canal affords communication between Beveridge's bay, on Lake Rideau, and the town of Perth.

The summit level of the Rideau system is at upper Lake Rideau, but several of the descending reaches are also supplied by waters which have been made tributary to them. The following description gives the sources of supply:—

From the summit, the route towards Ottawa follows the Rideau river, and that towards of Kingston follows the River Cataraqui. The supply of water for the canal is derived from the reserves given in detail below.

These may be divided into three systems, viz.:—

1. The summit level, supplied by the Wolfe lake system.

2. The eastern descending level to Ottawa, supplied by the River Tay system, discharging into Lake Rideau.

3. The south-west descending level to Kingston, supplied by the Mud lake system, formerly known as the Devil lake system, discharging into Lake Openicon.

Lake Openicon receives the waters of Buck lake and Rock lake.

All these waters on the descending level, supplemented by those of Lake Loughboro', flow into Cranberry lake, which, discharging through Round Tail outlet, forms the River Cataraqui. The river, rendered navigable by dams at various points, affords a line of navigation to Kingston.

RICHELIEU AND LAKE CHAMPLAIN.

This system, commencing at Sorel, at the confluence of the Rivers St. Lawrence and Richelieu, 46 miles below Montreal, extends along the River Richelieu, through the St. Ours lock to the basin at Chambly; thence, by the Chambly canal, to St. Johns, and down the River Richelieu to Lake Champlain. The distance from Sorel to the boundary line is 81 miles.

At Whitehall, the southern end of Lake Champlain is entered, and connection is obtained with the River Hudson, by which the city of New York is directly reached. From the boundary line to New York the distance is 330 miles.

The following table shows the distances between Sorel and New York:—

Section of Navigation.	Intermediate Distance.	Total Distances.
	Miles.	Miles.
Sorel to St. Ours lock	14	14
St. Ours lock to Chambly canal	32	46
Chambly canal	12	58
Chambly canal to boundary line	23	81
Boundary line to Champlain canal	111	192
Champlain canal to junction with Erie canal	66	258
Erie canal from junction to Albany	7	265
Albany to New York	146	411

ST. OURS LOCK AND DAM.

Length	⅛ mile.
Number of locks	1
Dimensions of locks	200 feet by 45 feet.
Total rise or lockage	5 feet.
Depth of water on sills	7 feet at low water.
Length of dam in eastern channel	300 "
Length of dam in western channel	690 "

At St. Ours, 14 miles from Sorel, the River Richelieu is divided by a small island into two channels. The St. Ours lock is in the eastern channel.

There is a navigable depth in the Richelieu of 7 feet between St. Ours lock and Chambly basin, a distance of 32 miles.

CHAMBLY CANAL.

Length of canal	12 miles.	
Number of locks	9	
Dimensions of locks :—		
Guard lock, No. 1 at St. Johns	122 feet.	From 22½ to 24 feet wide.
Lift " 2	124 "	
" " 3, 4, 5, 6	118 "	
" " 7, 8, 9 combined	125 "	
Total rise or lockage	74 "	
Depth of water on sills	7 "	
Breadth of canal at bottom	36 "	
Breadth of canal at surface of water	60 "	

This canal succeeds the 32 miles of navigable water between St. Ours lock and Chambly basin. The canal overcomes the rapids between Chambly and St. Johns.

TRENT CANAL.

The term 'Trent canal' is applied to a series of water stretches, which do not, however, form a connected system of navigation, and which, in the present condition, are efficient only for local use. By various works this local use has been extended, and by others, now in progress and contemplation, this will become a through route between Lake Ontario and Lake Huron.

The series is composed of a chain of lakes and rivers, extending from Trenton, at the mouth of the River Trent, on the Bay of Quinté, Lake Ontario, to Lake Huron.

Many years ago the utilizing of these waters for the purpose of through water communication between Lake Huron and Lake Ontario was projected.

The course, as originally contemplated and modified, is as follows:—

Through the River Trent, Rice lake, the River Otonabee and Lakes Clear, Stony, Lovesick, Deer, Buckhorn, Chemong, Pigeon, Sturgeon and Cameron to Lake Balsam, the summit water, about 165 miles from Trenton; from Lake Balsam by a canal and the River Talbot to Lake Simcoe; thence across Lake Simcoe to the Severn river; thence by the River Severn to Georgian bay, Lake Huron; the total distance being about 200 miles, of which only about 15 or 20 miles will be actual canal.

The full execution of the scheme, commenced by the Imperial government in 1837, was deferred. By certain works, however, below specified, sections of these waters have been made practicable for navigation, and the whole scheme is now being carried out. A branch of the main route, extending from Sturgeon lake south, affords communication with the town of Lindsay, and, through Lake Scugog to Port Perry, a distance of 190 miles from Trenton.

The following table gives the distance of navigable and unnavigable reaches:—

	Navigable Miles.	Unnavigable Miles.
From Trenton, Bay of Quinté, to Nine Mile rapids	—	9
Nine Mile rapids to Percy landing	19½	—
Percy landing to Heeley's Falls dam	—	14½
Heeley's Falls dam to Peterborough	51¾	—
Peterborough to Lakefield	—	9½
Lakefield to a point across Balsam lake	61	—
Balsam lake to Lake Simcoe	—	18¾
Across Lake Simcoe to Severn river	18	—
Lake Simcoe to Georgian bay via Severn river	—	14
	150¼	65¾
Total distance, Bay of Quinté to Georgian bay		212
From Sturgeon Point on Sturgeon Lake, 48¾ miles from Lakefield, the branch through the town of Lindsay to Port Perry at the head of Lake Scugog		27

The works by which the Trent navigation has been improved comprise canals, with locks and bridges, at Young Point, Burleigh Rapids, Lovesick, Buckhorn Rapids, Bob-

caygeon, Fenelon Falls and Rosedale; also dams at Lakefield, Young's Point, Burleigh Falls, Lovesick, Buckhorn, Bobcaygeon and Fenelon Falls. By these works there is afforded communication between Lakefield, 9½ miles from Peterborough, and Balsam lake, the headwaters of the system; opening up a total of about 160 miles of direct and lateral navigation.

At Lakefield, 9½ miles from Peterborough, the dam at the head of the Nine Mile rapids of the River Otonabee, maintains navigation on Lake Katchewannoe up to Young's Point.

At Young's Point, 5 miles from Lakefield, the dam between Lake Katchewannoe and Clear lake controls the water level through Clear and Stony lakes up to the foot of the Burleigh canal. The lock here, it should be observed, is controlled by the Provincial government.

At Burleigh Rapids, 10 miles from Young's Point, a canal, about 2¼ miles in length, passes the Burleigh and Lovesick rapids, and gives communication between Stony lake and Deer bay.

At Buckhorn rapids, 7 miles from Burleigh rapids, there is a canal about one-fourth of a mile long.

At Bobcaygeon, 15¾ miles from Buckhorn rapids, a dam, 553 feet long, controls the water level up to Fenelon Falls.

At Fenelon Falls, 15 miles from Bobcaygeon, a canal about one-third of a mile in length connects Sturgeon lake with Cameron lake.

The following is a list of the locks, with their dimensions:—

1	Lock at Rosedale, 100′ x 30′ x 4′ 6″ to 6′ 6″ depth water on mitre sill.	
2	Locks at Fenelon	134′ x 33′ x 5′ 0″ to 7′ 6″ depth of water on mitre sill.
1	" Lindsay	134′ x 33′ x 5′ 0″ to 7′ 0″ " "
1	" Bobcaygeon	134′ x 33′ x 5′ 8″ to 7′ 6″ " "
1	" Buckhorn	134′ x 33′ x 5′ 0″ to 9′ 0″ " "
1	" Lovesick	134′ x 33′ x 5′ 0″ to 9′ 4″ " "
2	" Burleigh	134′ x 33′ x 6′ 0″ to 8′ 0″ " "
1	" Young's Point (a provincial government work)	134′ x 33′ x 5′ 0″ to 14′ 0″ depth of water on mitre sill.
1	" Peterborough	134′ x 33′ x 5′ 0″ to 10′ 0″ depth of water on mitre sill.
1	" Chisholm's	134′ x 33′ x 5′ 0″ to 8′ 6″ " "
1	" Hastings	134′ x 33′ x 7′ 0″ to 10′ 6″ " "
1	Hydraulic lift lock at Ashburnham.	
14		

ST. PETER'S CANAL, CAPE BRETON.

Length of canal	About 2,400 feet.
Breadth at water line	55 feet.
Lock	One tidal lock, 4 pairs of gates.
Dimensions	200 feet by 48 feet.

Depth of water on sills	18 feet at lowest water.
Depth through canal	19 feet.
Extreme rise and fall of tide in St. Peter's bay	4 feet.

This canal connects St. Peter's bay on the southern side of Cape Breton, Nova Scotia, with the Bras d'Or lakes. It crosses an isthmus half a mile in width, and gives access from the Atlantic.

BEAUHARNOIS CANAL.

Length of canal	12 statute miles.
Number of locks	9
Dimensions of locks	200 feet by 45 feet.
Total rise or lockage	82½ "
Depth of water on sills	9 "
Breadth of canal at bottom	80 "
Breadth of canal at water surface	120 "

As the new Soulanges canal is now opened for navigation the Beauharnois canal is practically abandoned for navigation purposes.

I have the honour to be, sir,
Your obedient servant,

M. J. BUTLER,
Deputy Minister and Chief Engineer of Railways and Canals.

The Honourable H. R. EMMERSON,
Minister of Railways and Canals.

INTERCOLONIAL RAILWAY OF CANADA.

OFFICE OF THE GENERAL MANAGER,
MONCTON, N.B., August 27, 1906.

SIR,—I have the honour to submit the following report on the working of the Intercolonial Railway during the fiscal year ended June 30, 1906.

I inclose the report of the chief engineer on the works charged to capital account, the report of the engineer of maintenance on the repair and renewal of the permanent way, buildings and works, and the report of the superintendent of motive power and of the mechanical accountant, with the statements relating to the mechanical department; also the following statements of the accounts of the railway prepared by the chief accountant and treasurer:—

1. Capital account.
2. Revenue.
3. Locomotive power.
4. Car expenses.
5. Maintenance of way and works.
6. Station expenses.
7. General charges.
8. Special votes.
9. General stores.
10. General balance.
11. Comparative statement of averages.

The length of railway in operation during the year was 1,445·92 miles.

The extension from North Sydney to Sydney Mines, 2·70 miles in length, although not entirely completed, was opened for traffic on June 25, 1906

CAPITAL ACCOUNT.

The cost of road and equipment on June 30, 1905, was $77,473,557.73
The additions during the year were as follows:—

To increase accommodation at Sydney	$	54,432 22
Original construction		778 57
To strengthen bridges		244,582 68
To increase accommodation at Lévis		6,287 09
Air-brakes to freight cars		25,048 56
New machinery for locomotive and car shops		20,641 83
To exchange drawbars of freight cars		16,000 00
To dredge and blast rock at deep water terminus, Halifax		237 16
Improvements at Little Métis		4,926 74
New station at Windsor		16,605 25
Increased accommodation at Stellarton		22,568 17
Engine-house, machine shop, &c., at Rivière du Loup		26,548 04
Engine-house, &c., Chaudière Junction		26,492 93
Increased accommodation at St. John		75,784 53
To increase accommodation at Pictou		100,531 90
Improvements at North Sydney		7,409 97
To increase accommodation at Ste. Flavie		23,994 66
Protection to Grand Narrows bridge		23,592 92

Double-tracking parts of line	$ 206,948 74
Increased accommodation at Truro	99,743 50
To reduce curve at Birch Cove	39,798 17
Diversion of line at St. Leonard Junction	4,894 98
Diversion of line at Mitchell	1,780 37
To increase acccommodation at Moncton	88,187 08
To increase accommodation at Halifax	304,371 66
Drummondville, improvements at	13,392 15
Increased accommodation at Antigonish	5,889 21
Newcastle, improvements at	1,489 05
Campbellton, improvements at	1,339 71
Sackville, improvements at	1,255 00
New Glasgow, increased accommodation at	14,318 84
Additional sidings and spur lines	120,127 39
St. Moise, station at	2,525 97
Increased accommodation at Memramcook	4,114 45
Subway near St. Fabien	18 00
To increase accommodation at Amherst	8,270 42
Semaphores at stations	2,502 84
Rolling stock	1,291,234 77
Improving grades on line	18,906 40
Extension to Sydney Mines	42,402 70
Steel rails and fastenings	379,956 74
To increase water supply	32,007 84
Increased accommodation and facilities along line	42,016 37
Elevator at Halifax	3,474 35
To put railway between Indiantown and Blackville into condition for operation	959 96
Fredericton and St. Mary's bridge	300,000 00
Coal handling machinery and appliances	36,781 02
Total	$ 3,765,170 90
Making the total cost on June 30, 1906	81,238,728 63

Air-brakes to freight cars.

Two hundred and thirty-eight freight cars were equipped during the year with Westinghouse automatic quick-action air-brakes.

New machinery for locomotive and car shops.

This is for additional machinery for the construction and repair of locomotives and cars, and for the installation of it.

To exchange drawbars of freight cars.

Three hundred and twenty freight cars were changed from the link and pin drawbar to the M.C.B. coupler.

Rolling stock.

Sixteen Pacific type locomotives for passenger service, five combined second-class sleeping and baggage cars, three hundred and sixty box freight cars, twenty-five refrigerator cars, one hundred and thirty convertible dump cars, twenty freight vans, ten wing elevator snow-ploughs, two double-track snow-ploughs, two flanger cars and two ballast plough cars were purchased.

Coal handling machinery and appliances.

The coal used by the railway comes from mines in Nova Scotia and New Brunswick, and it has usually been hauled by train to all parts of the line. It was consid-

ered that it would be more economical to have the coal which is required at the more distant points carried there by water, and the railway wharfs at several points were prepared for this, and five steam cranes were purchased to transfer the coal from vessels to cars or wharfs.

Explanations in regard to the other expenditures on capital account will be found in the report of the Chief Engineer.

REVENUE ACCOUNT.

A strong effort was made during the year to make the earnings and the working expenses balance, and the statements sent herewith shew that this desirable result has been attained.

The gross earnings and the working expenses for the year compare as follows:—

Gross earnings	$7,643,829 90
Working expenses	7,581,914 36
Surplus	$ 61,915 54

The gross earnings compare as follows with those of the previous year:—

In 1905-06	$7,643,829 90
In 1904-05	6,783,522 83
Increase	$ 860,307 07

The earnings from passenger traffic compare as follows:—

In 1905-06	$2,297,716 52
In 1904-05	2,105,066 75
Increase	$ 192,649 77

The earnings from freight traffic compare as follows:—

In 1905-06	$5,019,805 53
In 1904-05	4,373,178 55
Increase	$ 646,626 98

The earnings from mails and express freight compare as follows:—

In 1905-06	$326,307 85
In 1904-05	305,277 53
Increase	$ 21,030 32

The earnings by mile of railway compare as follows:—

In 1905-06	$5,286 48
In 1904-05	4,795 13

The earnings by train mile compare as follows:—

	Cents.
In 1905-06	1·029
In 1904-05	0·929

The number of passengers carried compare as follows:—

In 1905-06	2,737,160
In 1904-05	2,810,960
Decrease	73,800

There was a decrease of 98,456 in the number of local passengers, and an increase of 24,656 in the number of through passengers.

The weight of freight carried compares as follows:—

	Tons.
In 1905-06	3,156,189
In 1904-05	2,782,257
Increase	373,932

There was an increase in local freight of 294,335 tons, and an increase in through freight of 79,597 tons.

The following is a comparative statement of a few of the chief articles of freight, showing the quantity carried in this and in the previous year:—

Articles.	1904-05.	1905-06.	Increase.	Decrease.
Barrels of flour and meal	1,769,480	1,882,630	113,150	
Bushels of grain	3,317,910	2,924,226		393,684
Lumber in superficial feet	518,434,310	572,878,600	54,444,290	
Head of live stock	110,670	106,589		4,081
Coal in tons	602,377	620,272	17,895	
Manufactured goods in tons	632,023	866,955	234,932	
Cords of firewood	58,400	47,106		11,294
All other articles in tons	504,991	510,080	5,089	

There was an increase over last year in the quantity of the following articles carried: Flour, meal and other mill products, potatoes and other vegetables, calves, horses, pigs, lumber, pulpwood, pit props, telegraph poles, railway ties, tanbark, shingles, clapboards, laths and palings, extract of hemlock bark, coal, ore, stone, lime and cement, brick, sand, iron and other metals, fresh, salted, dried and canned fish, oysters, sugar, salted and fresh pork, fresh beef, hides, skins and leather.

There was a decrease in the quantity of the following: Eggs, hay and straw, apples, horned cattle, sheep and lambs, logs, firewood, clams, molasses and salted beef.

WORKING EXPENSES.

The working expenses compare as follows with the previous year:—

In 1904-05	$8,368,826 75
In 1905-06	7,441,914 36
Decrease	$ 926,912 39

The averages compare with those of last year as follows:—

Per mile run by engines—

In 1905-06	79·98
In 1904-05	88·93

Per mile run by trains—	
In 1905-06	100·23
In 1904-05	114·69
Working expenses per mile of railway:—	
In 1905-06	$ 5,146 83
In 1904-05	5,915 74

The rent paid to the Grand Trunk Railway Company, $140,000, is not included in the above, as it would disturb the comparison with previous years; no corresponding charge relating to the cost of any portion of the railway having been included in the working expenses previous to the year 1898-99.

The permanent way and structures and all the works of the railway received necessary repairs and are in good order.

During the year 609,244 ordinary ties, and 207 sets of switch ties were put in.

74·88 miles of track were reballasted, 112,333 cubic yards of ballast being used.

Two and one-half miles of additional sidings were provided at various points.

Bridges, culverts, wharfs and buildings received necessary repairs.

The fences were repaired and 191·49 miles of fences were built.

The snow sheds and snow fences were repaired.

The rolling stock received necessary repairs, and its general condition is good.

Nineteen box freight cars of thirty tons capacity each were purchased; one box freight car, twenty-six platform cars, and one flanger car were built in the workshops of the railway, all to replace an equal number taken out of service. The box and platform cars were of greater capacity than the ones they replaced.

STORES.

The value of stores purchased was	$3,692,365 18
The value of stores used was	3,860,819 32
The value of material sold was	329,916 73

The value of stores on hand at the end of the year was:—

Miscellaneous	$ 290,358 62
Fuel	190,395 83
Track materials	220,194 96
Steel rails and fastenings	792,774 42
Total	$1,493,723 83

GENERAL.

The winter of 1905-06 was comparatively mild, and little delay was experienced from snow storms.

On August 29, 1905, the station, freight-house, coal-shed, and other railway buildings at Belmont were destroyed by a forest fire.

On February 24, 1906, a very destructive fire occurred in the workshops of the railway at Moncton. It started about eight forty-five p.m., in the paint shop, and before it was stopped it had entirely destroyed the paint shop, a wooden building 535 feet long and 65 feet wide, the freight car repair shop, a wooden building 565 feet long and 78 feet wide, the car shop, a two storey brick building, 455 feet long and 78 feet wide, a large brick building containing the steam boilers which supplied the power for all the workshops, a brick building 50 feet long and 40 feet wide used as a storehouse, the boiler shop, a brick building 160 feet by 100 feet, used for making and repairing boilers. This was the last building destroyed, but the machine shop, a brick building

adjoining, 230 feet by 100 feet was considerably damaged by fire and water. The contents of all the burned buildings were destroyed as there was no time to remove them.

The following rolling stock was destroyed:—

Thirteen passenger train cars, forty-one freight cars of the Intercolonial and other railways, also two steam shovels of the Intercolonial.

The two storey brick car shop was equipped with machinery for building and repairing cars and all this was entirely destroyed. A part of the machinery in the boiler shop was destroyed and the balance was much damaged.

A considerable quantity of railway stores, and also some freight in transit were burned.

In short the entire car building and repairing premises and plant, and a portion of the locomotive premises and plant were destroyed.

Immediately after the fire was extinguished work was commenced upon the ruins. Temporary buildings were rapidly constructed as shelters, but notwithstanding every effort made the delay and inconvenience have been very great and have entailed great loss in the operation of the railway, and this will continue for some time until permanent buildings are erected and equipped with machinery.

Some of the buildings destroyed were new, some had been extended at various times, and further extensions were under consideration at the time of the fire. These extensions, although much needed, in consequence of the increasing business of the railway, had been delayed from time to time because the railway had not sufficient land conveniently situated for the purpose.

After careful consideration of all the circumstances it was decided that it would not be in the best interest of the railway to rebuild on the old site, but that a tract of land sufficient not only for the present but for the future should be procured, and that on it the new and larger buildings required by the increasing traffic of the railway should be erected.

A suitable place was selected in the western part of the city adjoining the main line of the railway, and distant five thousand seven hundred feet from the site of the burned buildings. There an area of 287⅓ acres was purchased for workshops and other railway purposes. Plans of the new buildings were prepared and two of them, the freight car repair shop, and the planing mill were put under contract, and it is expected that they will be completed this fall. Plans of the other buildings are being prepared.

I regret to record the death of one of the principal officials of the railway, Mr. James E. Price, general superintendent, which took place at Moncton on August 2, 1905, after a short illness of one month. He was born in October, 1854, entered the service of the railway in 1867, and passed through the various grades of telegraph operator, train despatcher, and district superintendent to the position which he occupied at the time of his death.

Although only in his fifty-first year he had served the railway continuously for thirty-eight years. He was much esteemed by all who knew him for his upright and conscientious life and character.

It gives me pleasure to testify to the diligent, faithful, efficient and careful manner in which he performed his duties. In his death the railway sustained a great loss.

The office of general superintendent has not been filled.

I have the honour to be, sir,
Your obedient servant,

D. POTTINGER,
General Manager, Government Railways.

M. J. Butler, Esq., C.E.
Deputy Minister and Chief Engineer,
Department Railways and Canals,
Ottawa, Ont.

INTERCOLONIAL RAILWAY OF CANADA,
OFFICE OF THE CHIEF ENGINEER,
MONCTON, N.B., August 15, 1906.

SIR,—I have the honour to submit the following report on capital account expenditure for the fiscal year ending June 30, 1906.

To increase accommodation at Sydney.

The new brick and stone passenger station, for which the contract was let last year, has been completed, and electric lighting installed.

Umbrella roofs in connection with the new station were provided, and materials were ordered and preparations made for laying cement platforms.

The old baggage building, the express building, and the building occupied by the trackmaster as an office, were moved and fitted up for the use of the mechanical department.

The old passenger station was moved to new location on Ferry street and converted into offices for the freight department.

Three platforms, 800 feet long by 7 feet wide, and one 40 feet long by 20 feet wide, were provided for use in connection with the cleaning of cars.

A 15-ton pillar crane was provided, and will be erected next year. The material required for the foundation was provided.

Temporary platforms of wood were put down for use of the new passenger station until permanent concrete platforms are laid.

The station yard was graded, and tracks rearranged where required.

Original construction.

Under this vote, amounts were paid to settle claims in favour of: Alexander McKinnon, North Sydney; John A. McDonald, Iona; also legal expenses in connection with the above.

To strengthen bridges.

The following new steel bridges were erected during the year by the Canadian Bridge Company, Limited., Walkerville, Ont.:—Sutherland's river, 1 mile west of West Merigomish station, 1 span rivetted Pratt truss, 161 feet 6 inches; LaPlanche, ½ mile west of Amherst station, 1 span through Pratt truss, 80 feet; Sackville river, 1 mile West Sackville station, 3 spans rivetted Pratt truss, 160 feet each; Salmon river, ½ mile west of Plumweseep station, 2 spans, 100 feet each.

The necessary alterations of the masonry of abutments and piers have been made, new floors put upon these bridges and the work of reconstruction has been completed.

A contract was let for new steel bridges at Hammond river, Elmsdale, Enfield and Shubenacadie. The work of construction of these bridges is well under way, and they will be erected during the coming year. Ten bridges have been painted.

To increase accommodation at Lévis.

The concrete platform in connection with the new station and umbrella roofs was completed.

To dredge and blast rock at Deep Water Terminus, Halifax.

Nothing was done under this vote during the year, except to make soundings and borings.

Improvements at Little Metis.

Additional sidings required were put in.

New station at Windsor.

A new passenger station and a freight shed were provided, and electric lights installed.

The station yard was rearranged, and additional sidings put in. The roadway that was diverted last year in connection with the new location of the freight shed was completed.

Wood platforms required in connection with the new station and freight house were provided.

Increased accommodation at Stellarton.

A concrete platform was laid in connection with the new station and baggage building. Electric lights were installed. An addition was made to the existing freight shed. An extension of two stalls was made to the engine-house. The coal trestle was extended. The yard was rearranged, the necessary grading done, and additional sidings put in.

Engine-house, &c., at Rivière du Loup.

An 80,000 gallon water tank was erected. The yard was rearranged; additional tracks were put in, and sidings extended. Hose and a horse-reel were supplied for fire protection. Electric lighting was installed in the new engine-house and machine-shop.

Engine-house, &c., at Chaudière Junction.

Considerable grading was done, and 8,579 feet of sidings were put in the new yard. Improvements were made to the water service.

Fire hydrants, hose and hose-reel were installed for fire protection.

Plans and specifications were prepared for a building for stores and offices.

Electric lighting was installed in engine-house and freight-shed.

To increase accommodation at St. John.

The extension to the train shed was completed. The baggage-room was extended, and the rooms on the second floor were fitted up for rest-rooms for the trainmen, and provided with steam heating, up-to-date plumbing, electric lights, &c. Additional room was provided for express offices.

The rest-room for enginemen, in connection with the new engine-house, was supplied with desks, tables, chairs, stoves and shower baths, &c.

The steel work for the two overhead bridges—Wall and Stanley streets—was provided, and will be erected next year. Jardine's bridge, over the Marsh creek, at the west end of the yard, was widened to allow a second track to be laid. A bridge was also built over the Marsh creek, for a passage way from the city road to the engine-house.

The water service was extended.

Considerable grading was done, and additional sidings were put in.

An electric light plant was installed in the new round house.

To increase accommodation at Pictou.

The brick and stone building for passenger station and baggage room was completed. Umbrella roofs and concrete platforms in connection with the new station were provided. Electric lighting for the station and umbrella roofs was installed.

A contract was let for a 9-stall engine house, and the work of construction is well under way. The work of building and filling sea-wall, track laying, &c., in connection with new engine house is being done, and will be completed next year. A new turntable was purchased, and will be erected next year.

The creosoted pile wharf, for which the contract was let last year, was completed.

An additional lifting gangway was provided at the wharf, for the accommodation of passengers and freight landing from the steamers.

A retaining wall was built for the protection of the embankment between the custom house and the new station.

Considerable grading was done to yard, and additional sidings put in.

Improvements at North Sydney.

Additional land was purchased for yard accommodation.

Electric lights were installed in station and freight shed.

Some grading was done, and additional sidings put in.

To increase accommodation at Ste. Flavie.

A new ash pit was built. 3,900 feet of new sidings. Improvements were made to the water service. Hose and hose reel were supplied for fire protection. An agreement was made with the Mont Joli Water Company, of Levis, for the construction and maintenance of a main sewer.

Protection to Grand Narrows bridge.

The work in connection with the protection of this bridge has been completed.

Double-tracking parts of the line.

The grading for double track between Stellarton and New Glasgow has been completed, and the second track laid and ballasted.

The grading, track-laying and ballasting for the double track between Rockingham and Bedford, N.S.

The sub-structure for the 3-span double-track bridge over the Sackville river at Bedford, N.S., has been completed, and the steel superstructure will be erected during the coming fiscal year.

To increase accommodation at Truro.

The construction work of the 30-stall enigne house was carried on during the year, and the building will be completed next year. A contract was let for the installation of boilers, induced draft plant, steam pumps, air compressor, hot blast system of heating, and piping, for the engine house, and the work partly completed.

An 80,000 gallon water tank was erected.

A 75-foot turntable was purchased and delivered on the ground, and will be erected in place during the year 1906-07.

An extension was made to the existing baggage room, to be used as a mail room.

A large quantity of excavation was done for additional sidings and tracks for approaches to new engine house.

The five-foot culvert at the east end of the yard, on the main line to Pictou, was widened for another track, and the siding extended.

To reduce curve at Birch Cove.

The grading, track-laying and ballasting in connection with this work have been completed.

Diversion of line at St. Leonard Junction.

The track-laying and ballasting on this diversion will be completed as soon as the steel superstructure is erected.

The balance of the right of way has been paid for.

Diversion of line at Mitchell.

The track-laying and ballasting on this diversion will be completed as soon as the steel superstructure is erected.

To increase accommodation at Moncton.

The addition of a second storey to the brick car shop was completed, and the materials for the hot blast heating apparatus were provided. Before the apparatus was put in place, this building, as well as the paint shop, the freight car repair shop, the boiler shop, and the power house, was destroyed by fire on February 24.—wiping out all efforts for the enlargement and remodelling of the shops during the past number of years.

A new site was selected on the northern line leading to Montreal for the new lay-out, and proceedings started to procure the necessary land required, a part of which became vested in the Crown before the end of the fiscal year.

Plans and specifications were prepared and tenders asked for the first two buildings, viz.: freight car repair shop and planing mill.

To increase accommodation at Halifax.

The work in connection with the building, and overhead passage way, for improved accommodation for immigrants, has been completed; electric lighting was installed. The cribwork for strengthening under shed on pier No. 2 was also completed.

The buildings on the properties purchased last year on the upper side of Water street—between North street and the grain elevator—were advertised for sale, and they will be removed during the year 1906-7.

The quay wall of cribwork, for which the contract was let last year, has been completed. Part of the sidings required in connection with the quay wall of cribwork were put in. The filling required for additional yard room between the shore and the quay wall of cribwork was carried on during the year; the material used was hauled by train from the borrow pit purchased from Patrick M. Duggan at Lakeview.

Tracks were laid on the Intercolonial Railway property between the elevator and Cornwallis street.

Improvements were made to North street station and the umbrella roofs.

Creosoted material and hard pine, required in connection with the proposed extension to pier No. 8, were purchased.

Creosoted piles required in connection with the proposed flour shed and wharf, pier 5½, were also provided.

Land required for site of engine house and shops, on Kempt road, Windsor and Young streets, was purchased. Lay-out plans in connection with the proposed engine house and shops were made.

The carpenter shops and hard coal shed and trestle were moved and fitted up in the west end of Richmond yard; this was necessary on account of constructing the quay wall of cribwork.

Soundings were made between piers Nos. 3 and 4, and in docks Nos. 5½, 7 and 8.

The pole line on Water street was changed.

Electric lighting was installed in freight shed on pier No. 8.

Drummondville, improvements at.

The brick and stone passenger station was completed. Electric lighting and a hot water system of heating were installed in the new station. A concrete platform was partly laid in connection with the station.

Additional land was purchased for yard room.

A contract was let for the moving of the old station to a new location and converting it into a freight shed, and for remodelling and building an extension to the existing engine house.

An 80,000 gallon tank was erected.

Increased accommodation at Antigonish.

The new station, for which the contract was let last year, was completed. Electric lighting and a hot water system of heating were installed in the new station.

The old station was moved and joined to the east end of the existing freight shed, to enlarge the accommodation for handling freight.

Considerable grading was done and the main line raised.

Newcastle, improvements at.

A new ash pit was built; the track leading to it, and an office for the train despatchers, were provided.

Campbellton, improvements at.

A survey was made for the extension to the water service, and the materials required in connection with this were ordered.

The land required for site of reservoir and pipe line was bought and paid for.

Diversion of public road to eliminate a crossing at rail level between St. Cyrille and Drummondville..

Nothing was done under this vote.

Sackville, improvements at.

A survey was made for a water service to the station, and the right of way for pipe line was paid for.

New Glasgow, increased accommodation at.

An extension was made to the existing freight shed. A pillar crane was erected. A loading platform was provided.

The yard was re-modelled, and additional sidings put in. The second track connecting with the double track between Stellarton and New Glasgow was extended through the yard.

Additional sidings and spur lines.

The spur line to Power's mills, near St. Pacome Station, P.Q., has been completed.

	Feet.
St. Andre, crossing siding extended	735
St. Simon, loading siding extended	200
Bic, mountain crossing siding put in	2,500
Windsor junction, additional sidings	263
Springhill junction, additional sidings put in	3,180
Glengarry, a loading siding was provided	
St. Leonard junction, a new siding was put in	1,680
Between New Glasgow and Woodburn, a crossing siding was put in	1,450
Sacre Cœur, siding extended	1,000
Fort Lawrence spur: Right of way paid for; grading, tracklaying and fencing completed; ballasting to be done 1906-7	
Blackville, a new siding put in	1,150
Pictou Landing, new siding put in	2,080
Flatlands, new crossing siding	1,928
Fredericton, a new siding put in	1,030
Marysville, a new siding put in	811
St. Nicholas, loading siding	216
St. Moise, siding put in	190
St. Henri branch, track material charged.	
Oxford Junction, new siding	1,350
Bartibogue, new siding put in	416
Cross creek, new siding put in	650
Cap St. Ignace, a 'Y' was put in	840
Chatham, a new siding put in	2,650
Zionville, a new siding put in	1,228
Blissfield, a new siding put in	845

Jefferson's, siding extended	1,000
South river, new loading siding	500
Monastery, loading siding	228
Rivière du Loup, wharf branch	1,400
Dalhousie Jct., loading siding extended	565
St. Francois, crossing and loading sidings extended	926
St. Henri Jct., a new siding was put in	999
St. Jean Chrysostome, loading siding extended (loading ground graded)	500
Old Lake road, crossing siding, new	1,458
Marshy Hope, siding put in	405
Marshy Hope, siding put in	1,146
O'Brien's siding, new	252
Kempt, new siding put in	541
St. Simon, siding extended	200
St. Louise, crossing siding extended	714
Trois Pistoles, spur line	
Wallace, spur line	

St. Moise, Station at.

The new station was completed, the yard re-arranged, some grading done, and additional sidings put in.

Increased Accommodation at Memramcock.

A new station and freight house were provided. A concrete platform was laid in connection with the new station.

The station yard was graded and tracks rearranged.

Land required for site of new freight shed was purchased.

A cattle pen was provided.

Subway near St. Fabien.

Nothing was done under this vote during the year, except to make surveys and drawings.

Increased Accommodation at Amherst.

The yard was rearranged and sidings extended.

Semaphores at Stations.

Electric semaphores were put in at the following places: Truro (south), Amherst (west), Chaudiere Junction, Upper Cross Creek.

Improving Grades on Line.

The grades were improved at St. Wenceslas and Daveluyville.

To provide one Pile Driver.

This pile driver was not obtained.

Extension to Sydney Mines.

The grading and tracklaying of the main line was completed, and ballasting partly done.

The right of way was paid for.

Plans and specifications were prepared for a station and freight shed at Sydney Mines.

Material was delivered on the ground for laying a concrete platform at Sydney Mines.

The line was partly fenced.

Steel rails and fastenings.

During the year, 24,973—2,043, 2,240 tons of 80-lb. steel rails were received.

To increase water supply.

A contract was let for the erection of 50,000 gallon water tanks at the following places on the Canada Eastern Division: Gibson, Upper Cross creek, Boiestown, Blackville, Chatham Junction and Loggieville; and they are now under construction.

Land was purchased for laying pipe line at Upper Cross Creek.

Improvements were made to the water service at the following places: St. Fabien, Ste. Anne, Bathurst, L'Islet, Trois Pistoles, Blackville.

Land taken from Peter Grant in connection with the water service at River John was paid for.

To improve telegraph service.

Nothing was done under this vote.

Increased accommodation and facilities along the line.

The following work was done under this appropriation:—

Charlo, a stock pen was provided.

Woodburn, a new passenger station and a platform were provided.

Maccan, the brick passenger station was completed, and a hot air system of heating was put in. A concrete platform is being put down and will be completed during the coming year. The old station was torn down and the material used in the construction of an extension of 42 feet to the existing freight shed, after it was moved to the new locaiton, made necessary on account of the building of the new station. A room for baggage was provided in this new extension. A loading platform was built, and the cattle pen moved. The tracks in the new yard were extended and rearranged.

McKay's Siding, a station building and a platform were provided.

Nash's Creek, a stock pen was built.

Pirate Harbour, the engine-house was completed, and a telegraph office provided.

Shediac, plans and specification were prepared for a new sation, and tenders asked.

Harrisville, a shelter and platform were provided.

Barra Glen, a shelter and platform were provided.

Ste. Perpetue, plans and specifications were prepared for a new station, and tenders asked.

St. Moise, a stock pen was provided.

Union, a new station and a platform were provided.

Gordon's Summit, a shelter and platform were provided.

Folleigh Lake, an addition was made to the existing station.

Rogersville, an extension was made to the freight shed.

Sunny Brae, a shelter and platform were provided.

Chancellor, a new station and a platform were provided.

Kent Junction, an addition was made to the existing station.

Rivière Ouelle, an ice house was provided.

St. Henri Junction, an extension was built to the existing freight shed.

Norton, the station and freight shed were remodelled.

Lorne, a new station and a platform were provided.

L'Islet, additional land was purchased, and an extension was built to the existing station.

Iona, plans and specifications were prepared for a freight shed.

Salmon Lake, a stock pen was provided.

Millerton, an addition was made to the station.

Eel River, a stock pen was built.

To put Railway between Indiantown and Blackville into Condition for Operation.

Plans and ecpecification were prepared and a contract let for this work.

I have the honour to be, sir,
Your obedient servant,

WM. B. MACKENZIE,
Chief Engineer.

D. POTTINGER, Esq., I.S.O.,
General Manager, Government Railways,
Moncton, N.B.

INTERCOLONIAL RAILWAY.

OFFICE OF THE ENGINEER OF MAINTENANCE,
MONCTON, N.B., July 31, 1906.

SIR,—I have the honour to submit the report of the Maintenance of Way and Works Department for the year ending June 30, 1906.

TRACK.

During the year 106·34 miles of 56, 58, 67, 80 and 110-lb. rails were taken up, and replaced with 67 and 80-lb. rails.

TIES.

During the year 609,244 ordinary ties, and 207 sets of switch ties were put in.

BALLASTING.

During the year 74:88 miles of track was ballasted, using 111,368 cubic yards of gravel, and 965 yards of ashes and cinders.

SWITCHES AND SEMAPHORES.

Distant mechanical semaphore signals were erected at the following stations:—

Salisbury	1
Halifax	2
Heatherton	1
Marshy Hope	1
Marysville	2
Memramcook	1
South Western Junction	3
Tracadie	1
Avondale	2
Doaktown	2
Blackville	2
Nelson	2
St. Romuald	2
Boiestown	1
Chaudière Junction	1
St. Andre	2

One hundred and ten new switches were installed during the year.

New telegraph signals were provided at the following stations:—

Richmond, Burton's	5
Truro	3
Antigonish	1
McIntyre's Lake	1
Drummondville	2
Sydney	1
St. Moise	1
Causapscal	1
St. Leonard	1

Necessary repairs were made to all semaphores, switches and station telegraph signals throughout the line.

SIDINGS.

During the year, 2·56 miles of additional siding accommodation has been provided at different points on the line for maintenance account.

FENCE BUILT BY OUR OWN MEN.

20·49 miles of old woven and barbed wire, and 4 miles of new Strathy and Ideal wire were built at different points on the line.

Necessary repairs were made to fences throughout the line.

Built by contract, 167 miles of Strathy fence.

SNOW FENCES.

There was built during the year, 3,724 rods of stationary snow fence, 8 feet high, 842 rods 9 feet high, and 64 rods of portable snow fence.

Necessary repairs were made to snow sheds and snow fences where required.

WHARFS AND TRESTLES.

Repairs.

Point du Chene, end of wharf.
Point du Chene, riprapping breakwater.
St. John, covered ballast wharf.
St. John, top of long wharf.
St. John, top of ballast wharf.
Moncton, wharf.
Sackville, wharf.
Truro, coal trestle.
Richmond, pier No. 8.
Richmond, quay wall.
Richmond, coal shed trestle.
Halifax, pier No. 2.
Halifax, pier No. 3.
Halifax, pier No. 4.
Halifax, pier No. 6.
Halifax, pier No. 7.
Halifax, pier No. 9.
Halifax, coal shed trestle.
Halifax, cribwork, shed No. 2, planking, bracing, &c.
Halifax, Marine and Fisheries, test piles, proposed new pier.
Pictou, wharf.
Pictou, landing, ss. *Amelia.*

Pugwash, wharf.
Mulgrave, wharf.
Mulgrave, *Scotia's* dock.
Pirate Harbour, coal chute.
Point Tupper, wharf.
Point Tupper, wharf cover.
Point Tupper, overhead plank walk.
Point Tupper, side of dock.
Loggieville, wharf.
Mill Creek, cribwork.
St. Charles, coal trestle.
Lévis, cribwork.
Hadlow, Princess pier.

New Work.

Halifax, trestle to quay wall extension.
Halifax, passenger and freight gangways and baggage lifts, shed No. 2.
Halifax, overhead passageway, pier No. 2.
Pictou, lifting gangway.
Stellarton, extension to coal chute.

BRIDGES AND CULVERTS.

Repairs.

St. John, Wall street bridge.
St. John, swing bridge.
Coldbrook, box culvert.
Coldbrook, ¼ mile west of, box culvert.
Passekeag, ½ mile west of, end box culvert.
Between Bloomfield and Norton, box culvert.
Norton, 4 miles west of, box culvert.
Norton, 2½ miles west of, box culvert.
Norton, 1½ miles west of, box culvert.
Norton, 1 mile west of, open culvert.
Moncton, culvert.
Thomson, culvert.
Thomson, near station, culvert, rebuilt.
Onslow, aboideau.
Leper Brook, bridge.
Bedford, bridge.
Halifax, overhead bridge, North street.
Halifax, extending drain to quay wall.
West River, bridge.
Windsor, bridge.
Mott's, bridge.
Dartmouth, culvert.
North Ferry, bridge.
Pugwash Junction, culvert No. 2.
Pugwash Junction, culvert No. 3.
Pugwash, bridge.
Tatamagouche, Waugh's river bridge.
West river, bridge.
Meadowville, culvert.
Lyon's brook, culvert.
Horne's river, bridge.

Alma, culvert.
East river, escapes put on.
Pine Tree, bridge.
Monastery, bridge.
Mulgrave, culvert.
Point Tupper, culvert.
West Bay Ballast Pit, crib.
Mill Brook, bridge.
Grand Narrows, bridge.
Shenacadie, culvert.
Sydney, culvert under car washing tank. (Capital)
Blackville, bridge.
Doaktown, culvert, two.
Blackville, 4 miles east of, culvert.
Boiestown, bridge.
Cross creek, bridge.
Zion, culverts, four.
Durham, bridge.
Nashwaak, bridge.
Manzer's, bridge.
Penniac, bridge.
Penniac, culverts, five.
Gibson, culverts, three.
Averys Portage, culverts, three.
Barthelemue river, bridge.
Fredericton, bridge.
Indiantown branch, culvert.
Berry's Mills, culvert.
Canaan, culvert.
Harcourt, culvert.
Newcastle, culvert.
Newcastle, culvert.
Newcastle, No. 5, culvert.
Newcastle, No. 8, culvert.
Newcastle, No. 9, culvert.
Between Bathurst and Petit Roche, culvert.
Between Bathurst and Petit Roche, overhead bridge.
Between Petit Roche and Belledune, overhead bridge.
Jacquet river, culvert.
Between Bathurst and Gloucester Junction, overhead bridge.
Campbellton, culvert.
Campbellton, Mill Creek bridge.
Amqui, culvert No. 1.
Amqui, Culvert No. 7.
Amqui, Culvert No. 8.
Amqui, culvert No. 12.
Cedar Hall, culvert.
Cedar Hall, culvert No. 7.
Sacre Cœur, culvert.
St. Simon, culvert.
Rivière du Loup, bridge.
St. Andre, culvert.
St. Pacome, culvert.
Ste. Louise, culvert.
Cap St. Ignace, culvert.

Montmagny, bridge.
St. Charles, culvert.
St. Nicholas, east of, culvert.
Lemieux, east of, bridge.
Lemieux, east of, culvert.
St. Wenceslas, culvert.
St. Perpetue, culvert.
Mitchell, bridge.
Mitchell, west of, culvert.
Carmel, drain.
St. Cyrille, west of, culvert.
Drummondville, east of, culvert.
Bagot tank, bridge.
Blake's, culvert.
St. Leonard Junction, culvert.
Ste. Rosalie, culvert.

BRIDGES AND CULVERTS.

New Work.

Jardine's, driving piles for new bridge.
Springhill Junction, culvert.
Memramcook, culvert.
Truro, cedar culvert through dump.
Halifax, gratings for culverts and drains.

MASONRY WORK DONE.

Repairs.

Cold Brook, 1 mile west of, box culvert.
Cold Brook, ¼ mile west of, culvert.
Passekeag, ½ mile west of, box culvert.
Norton, 4 miles west of, two culverts.
Norton, 4 miles west of, box culvert.
Norton, 2½ miles west of, culvert.
Norton, 2½ miles west of, box culvert.
Norton, 1½ miles west of, box culvert.
Norton, 1½ miles west of, box culvert.
Norton, 1 mile west of, two culverts.
Apohaqui, 2 miles west of, bridge.
Penobsquis, 1 mile west of, bridge.
Moncton, station platform.
Amherst, culvert.
Springhill Junction, culvert.
Springhill Junction, pipe line.
Oxford Junction, culvert.
Thomson, pipe line.
Thomson, five culverts.
Thomson, arch culvert.
Greenville, sodam bridge.
Greenville, three culverts.
Pugwash Junction, arch culverts.
Pugwash, two culverts.
Pugwash river, bridge.
Tatamagouche, bridge.
Meadowville, culvert.

Horns', bridge.
Merigomish, bridge.
Tracadie, culvert.
Monastery, bridge.
Grand Narrows, bridge.
Blackville, bridge.
Boiestown, bridge.
St. Alexandre, 1 mile west of, culvert.
St. Alexandre, 3 miles east of, culvert.
St. Andre, 1½ miles east of, culvert.
St. Andre, east of, culvert.
St. Andre, west of, culvert.
St. Helene, east of, two culverts.
L'Islet, 2 miles east of, culvert.
Cap St. Ignace, west of, culvert.
Montmagny, west of, two culverts.
Montmagny, east of, culvert.
St. Valier, east of, two culverts.
St. Valier, east of, culvert.
St. Henri, bridge.
Daveluville, culvert.
St. Wenceslas, arch culvert.

PAINTING.

Bridges.

St. John, bridge harbour.
St. John, bridge, Dorchester street.
Aulac, bridge No. 8.
Nappan, bridge.
Greenville, bridge No. 3.
Folleigh, bridge No. 5.
Folleigh, bridge No. 11.
Truro, bridge No. 12.
Pugwash, bridge harbour.
Barney's River, bridge No. 9.
Barney's River, bridge No. 11.
Barney's River, bridge No. 13.
James' River, bridge No. 8.
Cape Porcupine, bridge No. 22.
Cape Porcupine, bridge No. 21.
Cape Porcupine, bridge No. 32.
Rimouski, bridge.

BUILDINGS AND PLATFORMS.

Repairs.

St. John, coal shed.
St. John, tool house.
St. John, station dwelling.
St. John, mechanical shop.
St. John, Gilbert's Lane, store house.
St. John, cabinet, yardmaster's office.
St. John, baggage room.
St. John, dwelling house, Paradis Row.
St. John, dwelling house, Lombard street.

St. John, train shed platform.
St. John, blacksmith shop.
St. John, freight shed.
St. John, sheds Nos. 1 and 2.
St. John, elevator.
St. John, track scales.
St. John, train shed.
St. John, baggage room.
St. John, agent's office.
St. John, water house, long wharf.
St. John, round house.
St. John, yardmaster's office.
St. John, oil house, long wharf.
St. John, coachman's hall.
St. John, freight shed, long wharf.
Rothesay, station and platform.
Rothesay, tool house.
Hampton, station and platform.
Hampton, freight house.
Hampton, baggage room.
Cold Brook, coal house.
Cold Brook, freight house.
Brookville, kitchen.
Torryburn, station platform.
Riverside, coal house.
Riverside, station platform.
Quispamsis, station platform.
Jubilee, station and platform.
Nauwigewauk, coal house.
Nauwigewauk, station and platform.
Nauwigewauk, station.
Lakeside, station.
Passekeag, station closet.
Bloomfield, tool house.
Bloomfield, station platform.
Bloomfield, coal house.
Bloomfield, loading platform.
Bloomfield, station.
Norton, station and platform.
Apohaqui, station and platform.
Apohaqui, freight house.
Sussex, station and platform.
Sussex, coal house.
Sussex, loading platform.
Penobsquis, station and platform.
Armstrong's, shelter.
Salisbury, station platform.
Salisbury, freight house.
Moncton, rest house.
Moncton, No. 11 cottage.
Moncton, No. 6 cottage.
Moncton, erecting shop and pits.
Moncton, station platform.
Moncton, general office.
Moncton, janitress' cottage.

Moncton, posts around platform.
Moncton, round house.
Moncton, switchman's shanty.
Moncton, government cottage.
Moncton, floor, brick car shop.
Moncton, cattle pen.
Moncton, telegraph office.
Moncton, general office vault.
Moncton, desk, freight claims' office.
Moncton, carpenter shop.
Moncton, boiler shop.
Moncton, brick car shop.
Moncton, sashes, boiler shop.
Moncton, heating apparatus, government.
Moncton, cottage, Main street.
Sunny Brae, shelter.
Humphrey's, platform.
Harrisville, shelter.
Shediac, platform.
Point due Chene, roof, agent's dwelling.
Point due Chene, platform.
Point due Chene, round house.
Point due Chene, ice house.
Point due Chene, agents' dwelling.
Painsec Junction, station.
Painsec Junction, tool house.
Calhouns, station and platform.
Gayton's Crossing, shelter.
Memramcook, coal shed.
Memramcook, freight shed.
College Bridge, station and platform.
Upper Dorchester, station.
Dorchester, station and platform.
Sackville, station and platform.
Aulac, platform.
Fort Lawrence, platform.
Amherst, station and platform.
Amherst, coal shed.
Amherst, baggage room.
Nappan, station.
Napan, loading platform.
Maccan, passenger platform.
Athol, platform.
Springhill Junction, station.
Springhill Junction, coal shed.
Pugsley's siding, loading platform.
Salt Springs, platform.
River Philip, station and platform.
Thomson, station flue.
Westchester, station platform.
Wentworth, station and platform.
Wentworth, station flue.
Folleigh, station and platform.
East Mines, station platform.
East Mines, coal shed.

Debert, loading platform.
Belmont, station platform.
Belmont, loading platform.
Belmont, tool house.
Onslow, platform.
Truro, station.
Truro, roundhouse.
Truro, ice house.
Truro, loading platform.
Truro, telegraph office.
Truro, restaurant.
Milden, station.
Brookfield, station.
Brookfield, cattle pen.
Brookfield, W.C. and coal house.
Brookfield, freight house.
Alton, station.
Stewiacke, station and platform.
Stewiacke, office.
Stewiacke, waiting room.
Stewiacke, loading platform.
Shubenacadie, station.
Milford, platform.
Elmsdale, freight house.
Elmsdale, station.
Enfield, cattle pen.
Oakfield, platform.
Grand Lake, platform.
Lakeview, station.
Prince's Lodge, shelter and platform.
Richmond, station.
Richmond, car shed roof.
Richmond, machine shop.
Richmond, lumber shed roof.
Richmond, roundhouse and roof.
Richmond, D.A.R. shed.
Richmond, cattle shed roof.
Richmond, coal shed.
Richmond, turntable.
Richmond, blacksmith shop.
Richmond, checker's office.
Richmond, shunter's shanty.
Richmond, tool house.
Halifax, North street, cattle pen and platform.
Halifax, North street, station.
Halifax, North street, train shed.
Halifax, North street, power house
Halifax, car shop roof.
Halifax, coal shed.
Halifax, cattle pen.
Halifax, roundhouse.
Halifax, D.W.T., loading platform.
Halifax, immigration building.
Halifax, overhead gallery, for pier No. 1 and 2.
Halifax, overhead gallery, from pier No. 3 to immigration building.
Halifax, carpenter shop.

Halifax, elevator.
Halifax, power house.
Halifax, D.A.R. freight house.
Halifax, southwestern telegraph office.
Halifax, baggage lifts, shed No. 2.
Halifax, platform, pier No. 2.
Halifax, doors, pier No. 4.
Halifax, pier No. 8.
Landsburg Siding, loading platform.
Landsburg Siding, tool house.
Gordon's Summit, flag station.
Glengarry, freight house.
Windsor Junction, platform.
Waverly, platform.
Dartmouth, platform.
Dartmouth, engine shed.
Dartmouth, freight house.
Oxford Junction, engine house.
Pugwash Junction, platform.
Pugwash, freight house.
Pugwash, station.
Tatamagouche, station.
Tatamagouche, platform.
Denmark, station.
River John, loading platform.
Meadowville, station and platform.
Meadowville, cattle pen.
Scotsburn, loading platform.
Scotsburn, station and platform.
Lyon's Brook, station.
Brown's Point, station and platform.
Sylvester, station.
Pictou, freight shed.
Pictou, station.
Pictou, station platform.
Pictou, engine house.
Pictou, ice house.
Pictou, old station platform.
Westville, station and platform.
Stellarton, round house.
Stellarton, platform.
Stellarton, freight shed.
Stellarton, station.
New Glasgow, platform.
New Glasgow, ice house.
New Glasgow, baggage room.
New Glasgow, loading platform.
New Glasgow, station.
New Glasgow, store room.
New Glasgow, freight shed.
West Merigomish, station.
Marshy Hope, station.
Antigonish, station steps.
Antigonish, station.
Heatherton, station.
Bayfield Road, freight shed.

Afton, kitchen.
Tracadie, station.
Cecil Road, station, car.
Pirate Harbour, coal shed.
Pirate Harbor, boiler room.
Pirate Harbor, platform.
Mulgrave, platform.
Mulgrave, freight shed.
Trenton, freight shed.
Point Tupper, station.
Point Tupper, dwelling house.
Point Tupper, platform.
Point Tupper, power house.
Point Tupper, coal house.
West Bay Road, station.
River Deny's, station.
Orangedale, station.
McKinnon's Harbour, station.
Iona, station.
Grand Narrows, station.
Grand Narrows, coal house.
Shenacadie, station.
Boisdale, station.
Barrachois, station.
George's River, station.
North Sydney Junction, station.
North Sydney, freight shed.
North Sydney, engine shed.
North Sydney, station.
Leitche's Creek, station.
Leitche's Creek, loading platform.
Barra Glen, shelter.
Sydney, station.
Sydney, carpenter shop.
Sydney, old roundhouse and shed.
Sydney, freight office.
Sydney, platform.
Sydney, roundhouse.
Sydney wharf, freight shed.
Loggieville, engine house.
Loggieville, tool house.
Chatham, station platform.
Chatham, station.
Chatham, freight house.
Chatham, roundhouse.
Nelson, station.
Cushman's, platform.
Blackville, station platform.
Blackville, freight shed.
Doaktown, station.
Boiestown, station.
Johnston's Road, station platform.
Forks, station platform.
Irving's Crossing, platform.
Cross Creek, freight house.
Marysville, station.

Gibson, station platform.
Fredericton, station platform.
Fredericton, station.
Fredericton, trackmaster's office in station.
Canaan, station platform.
Canaan, W.C.
Adamsville, station.
Adamsville, station platform.
Harcourt, station platform.
Harcourt, freight house.
Kent Junction, station platform.
Kent Junction, kitchen.
Acadiaville, loading platform.
Rogersville, tank.
Barnaby River, station.
Barnaby River, station platform.
Chatham Junction, station.
Chatham Junction, cattle pen.
Chatham Junction, station platform.
Derby Junction, station.
Derby Junction, station platform.
Millerton, station.
Davidson's, platform.
Indiantown, station.
Indiantown, engine shed.
Newcastle, coal shed and boxes.
Newcastle, loading platform.
Newcastle, station platform.
Newcastle, roundhouse.
Newcastle, freight shed.
Newcastle, bonded room, in freight shed.
Newcastle, station.
Beaver Brook, coal shed.
Beaver Brook, freight room.
Red Pine, pump house.
Gloucester Junction, station.
Bathurst, station platform.
Bathurst, station.
Beresford, station.
Nigadoo, station.
Petit Roche, loading platform.
Petit Roche, station.
Jacquet river, coal shed.
Jacquet river, lumber shed.
Jacquet river, tank.
Nash's creek, station.
Nash's creek, cattle pen.
Green Point, platform.
Dalhousie Junction, loading platform.
Dalhousie, kitchen.
Dalhousie, coal shed.
Campbellton, station platform.
Campbellton, coal shed.
Campbellton, engine-house.
Campbellton, carpenter shop.
Campbellton, office, locomotive foreman.

Campbellton, station.
Campbellton, trackmaster's office.
Campbellton, tool-house.
Campbellton, freight shed.
Campbellton, superintendent's house.
Campbellton, despatcher's office.
Moffatt's, station platform.
Moffatt's, station.
Flat lands, station.
Matapedia, station.
Matapedia, station platform.
Matapedia, freight shed.
Matapedia, baggage-room.
St. Alexis, station platform.
St. Alexis, station.
Between Matapedia and Millstream, hand-car house.
Millstream, station platform.
Millstream, hand-car house.
Assametquaghan, station platform.
Assametquaghan, station.
Causapscal, station platform.
Causapscal, station.
Causapscal, coal-shed.
Causapscal, tool-house.
Salmon lake, station.
Amqui, station platform.
Amqui, section foreman's house.
Amqui, station.
Amqui, loading platform.
Amqui, freight shed.
Cedar Hall, station platform
Sayabec, station.
Sayabec, station platform.
St. Moise, coal shed.
St. Moise, cattle pen.
Little Metis, station platform.
Little Metis, station.
Little Metis, freight shed.
St. Octave, station platform.
St. Octave, coal shed.
St. Octave, station.
St. Octave, freight shed.
Ste. Flavie, coal shed.
Ste. Flavie, station.
Ste. Luce, station.
St. Anaclet, tank.
Rimouski, ice-house.
Bic, station.
Bic, platform.
St. Simon, station.
Trois Pistoles, station.
St. Eloi, station.
Isle Verte, station.
St. Arsene, station.
Rivière du Loup, platform.
Rivière du Loup, freight shed.

Old Lake Road, station platform.
St. Alexandre, loading platform.
St. Paschal, station platform.
St. Paschal, station.
St. Phillippe de Neri, cattle pen.
River Ouelle, station.
River Ouelle, sheathing, telegraph office.
River Ouelle, coal shed.
River Ouelle, freight shed.
River Ouelle, telegraph table in station.
Letellier, River Ouelle Branch, station.
River Ouelle, agent's dwelling, drainage, &c.
Ste. Anne, station.
Ste. Louise, kitchen, agent's house.
Ste. Louise, station.
Elgin Road, station platform.
L'Islet, kitchen.
Montmagny, station platform.
St. Pierre, station platform.
St. Valier, station.
St. Michael, station platform.
St. Charles, station.
Harlaka Junction, station.
Lévis, platform, between baggage room and station.
Lévis, building for mechanical department.
Lévis, station platform.
Lévis, sidewalk between Lévis and Hadlow.
Lévis, house, Chapman property.
Lévis, cedar posts, along concrete platform.
Lévis, chimneys on houses, Chapman property.
Lévis, car inspector'sshop.
Lévis, car inspector's shop.
Lévis, ice house.
Lévis, station.
Lévis, freight house.
Lévis, carpenter shop.
St. Romuald, loading platform.
Chaudière Curve, station.
Chaudière Curve, chimney, Giroux house.
Chaudière, doors in freight shed.
Chaudière, station.
St. Nicholas, station.
Chaudière Junction, pump house.
Chaudière Junction, engine house.
Chaudière Junction, chimney, office transfer shed.
Chaudière Junction, freight shed doors.
Laurier, station platform.
Laurier, station.
Laurier, station dwelling.
Delotbinere, tank.
Villeroy, coal shed, car top.
Villery, platform to coal shed.
Villeroy, station.
Villeroy, station platform.
Manseau, station.
Lemieux, storm doors.

Daveluyville, cellar.
Aston Junction, storm doors.
St. Leonard Junction, platform.
St. Leonard Junction, station.
St. Monique, station platform.
Nicolet, engine house.
Nicolet, coal shed.
Mitchell, cupboard in station.
Mitchell, freight shed.
St. Cyrille, station.
St. Cyrille, coal shed.
St. Cyrille, baggage room.
Drummondville, station.
Drummondville, cupboard, trackmaster's office.
Drummondville, cupboard for battery jars, station.
Bagot, station.
Bagot, station platform.

BUILDINGS AND PLATFORMS.

New Work.

Portage pit, boarding house.
Moncton, water-closets, in 12 railway employees' cottages.
Moncton, track blacksmith shop.
Moncton, track blacksmith shop, engine house.
Moncton, track blacksmith shop, coal shed.
Moncton, track blacksmith shop, office.
Moncton, track blacksmith shop, desk, cupboard and shelves.
Moncton, track blacksmith shop, cement floor near boiler.
Moncton, new paint shop.
Moncton, mixing room.
Moncton, platforms, 675 feet.
Pt. Du Chene, building for Marine Department.
Painsec Junction, freight shed.
Dorchester, shanty for mason's tools, &c.
Aulac, station.
Aulac, freight shed.
McIntyre's Lake, station.
McIntyre's Lake, freight shed.
Red Pine, hand car house.
Bathurst, pump house.
Bathurst, coal shed.
Charlo, cattle pen.
Eel river, hand car house.

PAINTING.

St. John, coachman's house.
Hampton, tank.
Penobsquis, station.
Petitcodiac, coal house.
Petitcodiac, tank.
Salisbury, station buildings.
Moncton, station.
Pt. Du Chene, station.
Upper Dorchester, station.
Evan's, station.
Sackville, freight house roof.
Nappan, station.
Athol, station.

River Philip, station.
Wentworth, station.
Folleigh, station.
Folleigh, tank.
Truro, tank.
Truro, freight shed.
Alton, station.
Belmont, station.
Glengarry, station.
Stellarton, tank.
Stellarton, car repair shop.
New Glasgow, baggage room.
Alton, tank.
River John, tank.
Merigomish, station, interior.
Piedmont, tank.
Avondale, station.
Barney's River, station.
Marshy Hope, station.
James' River, station.
South River, station.
Pomquet, station.
Heatherton, station.
Bayfield Road, tank.
Taylor's Road, station.
Mulgrave, tank.
Mulgrave, coverings on Ferry's Landing.
Point Tupper, coverings on Ferry's Landing.
Point Tupper, station and freight house.
West Bay Road, station.
River Denys, station.
Orangedale, station and freight house.
Estmere, station.
Ottawa Brook, station.
McKinnon's Harbour, station and freight house.
Christmas Island, station.
Iona, station.
Grand Narrows, station.
Shenacadie, station and freight house.
Beaver Cove, station.
Boisdale, station.
Barrachois, station.
North Sdyney Junction, station.
Leitche's Creek, station.
Scotsburn, station, interior.
Canaan, station.
Adamsville, station.
Kent Junction, station.
Indiantown, station.
Moffat's, station.
Moffat's, section foreman's house.
Ste. Flavie, station.
Ste. Luce, station.
Sacre Coeur, station.
Bic, station.
St. Fabien, station.
St. Simon, station.

Cacouna, station.
Harlaka Junction, station.
Hadlow, buildings.
St. Nicholas, station.
Laurier, station.
St. Romuald, station.
Carmel, station and buildings.
St. Cyrille, station buildings.
St. Germain, station and freight house.
St. Eugene, station and freight house.
Lavergne, station.
Daveluyville, station buildings.
St. Wenceslas, station buildings.
St. Michel, station.
Ste. Rosalie, w. closet.

MASONRY WORK DONE.

Buildings and Platforms.

Thomson, station flue.
Westchester, station flue.
Wentworth, station flue.
North Sydney, track scales.
North Sydney, freight shed wall.
Chatham, round house.

GENERAL.

New buffers made and set up at different points on the line where required, and repairs made where necessary.

Repairs were made to crossings at various points on the line, where required.

Gates and cattle-guards were repaired throughout the line.

Glass was put in and glazing done, where necessary.

A number of old box car tops were repaired and fitted up during the year for hand car and tool-houses.

Ladders for buildings and semaphores were provided where required along the line.

Outhouses and approaches to public road crossings were whitewashed where required.

Necessary repairs have been made to turn-tables, where required.

Painting has been done to the semaphores, switches and telegraph signals throughout the line, where required.

Necessary repairs were made to hand cars, trollies, baggage trucks and wheelbarrows, throughout the line.

Sign-boards were made and put up throughout the line where required.

Boxes were made for the packing of second-hand spikes and bolts, when required.

Necessary repairs were made to steam shovels when required.

I beg leave to say that the road, in every particular, has been maintained in its usual good condition, and from the remarks, which we hear from strangers, travelling over it, we feel that nothing has been neglected.

I have the honour to be, sir,
Your obedient servant,

T. C. BURPEE,
Engineer of Maintenance of Way and Works.

D. POTTINGER, Esq.,
General Manager, Govt. Rys.,
Moncton, N.B.

No. 1.—INTERCOLONIAL RAILWAY.

Capital Account, year ended June 30, 1906.

	Dr.	$ cts.	$ cts.		Cr.	$ cts.
1905.				1905.		
June 30.	To Cost of Intercolonial to date		77,473,557 73	June 30.	By Dominion of Canada	77,473,557 73
1906.						
June 30.	To Expenditure for current year—					
	Increased accommodation at Sydney	54,432 22				
	Original construction	778 57				
	To strengthen bridges	244,582 68				
	To increase accommodation at Levis	6,287 09				
	Air brakes to freight cars	25,018 56				
	To exchange drawbars of freight cars	16,000 00				
	New machinery for locomotive and car shops	20,641 83				
	To dredge and blast rock at Halifax	237 16				
	Improvements at Little Métis	4,926 74				
	New station at Windsor, N.S.	16,605 25				
	Increased accommodation at Stellarton	22,568 17				
	Engine house, machine shop, &c., Riv. du Loup	26,548 04				
	Engine house, &c., Chaudière Junction	26,492 93				
	Increased accommodation at St. John	75,781 53				
	To increase accommodation at Pictou	100,531 90				
	Improvements at North Sydney	7,409 97				
	To increase accommodation at St. Flavie	23,994 66				
	Protection to Grand Narrows bridge	23,592 92				
	Double tracking parts of line	206,948 74				
	Increased accommodation at Truro	99,743 50				
	To reduce curve at Birch Cove	39,798 17				
	Diversion of line at St. Leonard	4,891 98				
	Diversion of line at Mitchell	1,780 37				
	To increase accommodation at Moncton	88,187 08				
	To increase accommodation at Halifax	304,371 66				
	Improvements at Drummondville	13,392 15				
	Increased accommodation at Antigonish	5,889 21				
	Improvements at Newcastle	1,489 05				
	Improvements at Campbellton	1,339 71				
	Improvements at Sackville	1,255 00				
	Increased accommodation at New Glasgow	14,318 84				
	Additional sidings and spur lines	120,127 39				
	Station at St. Moïse	2,525 97				
	Increased accommodation at Memramcook	4,114 45				
	Subway near St. Fabien	18 00				
	To increase accommodation at Amherst	8,270 42				
	Semaphores at stations	2,502 84				
	Rolling stock	1,291,234 77				

Elevator at Halifax	3,474 35				
Improving grades on line	18,906 40				
Extension to Sydney Mines	42,402 70				
Steel rails and fastenings	379,956 74				
Fredericton and St. Mary's Bridge	300,000 00				
To increase water supply	32,007 84				
Increased accommodation and facilities along the line	42,016 37				
To put railway between Indiantown and Blackville into condition for operation	959 96		1906.		
Coal handling machinery and appliances	36,781 02	3,765,170 90	June 30...	By Dominion of Canada	3,765,170 90
		81,238,728 63			81,238,728 63

T. WILLIAMS,
Chief Acct. and Treas.

E. & O. E.
MONCTON, N.B.

No. 2.—INTERCOLONIAL RAILWAY.

REVENUE Account, Year ended June 30, 1906.

Previous Year.	Expenditure.	Year ended June 30, 1906.	Previous Year.	Earnings.	Year ended June 30, 1906.
$ cts.		$ cts.	$ cts.		$ cts.
3,116,653 49	Locomotive power	2,930,075 83	2,105,066 75	Passenger traffic	2,297,716 52
2,040,133 13	Car expenses	1,617,119 70	4,373,178 55	Freight traffic	5,019,805 53
1,722,616 65	Maintenance Way and Works	1,397,143 62	305,277 53	Mails and sundries	326,307 85
937,816 11	Station expenses	1,032,764 20			
535,541 85	General charges	586,267 90			
8,352,761 23		7,563,371 25			
16,065 52	Car mileage	121,456 89			
8,368,826 75		7,441,914 36			
140,000 00	Rental of leased lines	140,000 00			
8,508,826 75		7,581,914 36	6,783,522 83		7,643,829 90
		61,915 54	1,725,303 92	Balance	
8,508,826 75		7,643,829 90	8,508,826 75		7,643,829 90

No. 3.—INTERCOLONIAL RAILWAY.

LOCOMOTIVE Power, Year ended June 30, 1906.

Previous Year.		Year ended June 30, 1906.
$ cts.		$ cts.
26,729 19	Mechanical superintendent's salary, clerks, office and travelling expenses	27,461 61
747,779 65	Wages of drivers, firemen and cleaners	740,382 17
1,487,918 30	Fuel	1,407,402 73
45,192 75	Oil, tallow and waste and small stores	39,175 30
691,009 83	Repairs to engines, tenders and engine tools	574,502 85
47,355 31	Water, including pump and tank repairs	51,185 75
70,668 46	Miscellaneous	89,965 42
3,116,653 49		2,930,075 83

No. 4.—INTERCOLONIAL RAILWAY.

Car Expenses, Year ended June 30, 1906.

Previous Year.	——	Year ended June 30, 1906.
$ cts.		$ cts.
225,379 24	Repairs to passenger cars	167,767 08
43,564 62	Repairs to postal, express and baggage cars	37,641 41
739,885 73	Repairs to freight cars and vans	419,976 88
24,744 12	Repairs to snow ploughs and flangers	16,799 54
775,372 47	Wages of conductors, train baggage masters and brakemen	702,784 70
10,663 29	Oil and waste for packing	8,994 07
177,367 54	Small stores and fuel	175,794 26
43,156 12	Miscellaneous	87,361 76
2,040,133 13		1,617,119 70

No. 5.—INTERCOLONIAL RAILWAY.

Maintenance of Way and Works, Year ended June 30, 1906.

Previous Year.	——	Year ended June 30, 1906.
$ cts.		$ cts.
8,682 82	Chief and assistant engineers salaries, clerks, office and travelling expenses	10,514 30
711,381 60	Wages in repairing roadway, fences, semaphores, including new sidings laid in	651,991 32
137,940 52	Rails and fastenings, including new sidings laid in	87,489 41
219,219 95	Ties	182,785 35
199,225 80	Timber, lumber, &c., for repairs to bridges, cattle-guards, snow sheds, fences, &c	236,597 20
44,579 00	Repairs to wharfs	16,867 59
412,101 44	Repairs to buildings and platforms, including extensions and additions to same	126,722 27
22,553 62	Repairs to tools	24,734 00
264,716 14	Cleaning snow and ice	55,380 62
2,215 76	Miscellaneous	4,061 56
1,722,616 65		1,397,143 62

No. 6.—INTERCOLONIAL RAILWAY.

STATION Expenses, Year ended June 30, 1906.

Previous Years.	——	Year ended June 30, 1906.
$ cts.		$ cts.
797,065 54	Salaries and wages of station-masters, agents, clerks, telegraph operators, station baggage masters, yardmasters, switchmen and labourers	881,056 92
140,750 57	Fuel, oil and light, stationery, tickets and other incidental expenses	151,707 28
937,816 11		1,032,764 20

No. 7.—INTERCOLONIAL RAILWAY.

GENERAL Charges, Year ended June 30, 1906.

Previous Year.	——	Year ended June 30, 1906.
$ cts.		$ cts.
229,835 26	General manager, general superintendent, traffic manager, district superintendents, train despatchers, general freight agents, general passenger agents salaries, clerks, office and travelling expenses	219,837 37
59,161 43	Chief accountant and treasurer, traffic auditor, paymaster, cashier's salaries, clerks, office and travelling expenses	62,834 76
37,766 40	Damage to men, animals and goods	46,134 75
63,324 57	Ferry service	77,636 60
2,729 59	Telegraph expenses, not including pay to operators	1,887 70
75,407 04	Miscellaneous, printing, advertising, &c	105,984 86
67,317 56	Agency expenses	71,348 36
	Gratuity to family of late C. J. Carter	$ 103 50
	Gratuity to widow of late general superintendent J. E. Price	500 00
		603 50
535,541 85		586,267 90

No. 8.—INTERCOLONIAL RAILWAY.

SPECIAL Votes, Year ended June 30, 1906.

Previous Year.	Rental of leased lines.	Year ended June 30, 1906.
$ cts.		$ cts.
140,000 00	Rent of Grand Trunk Railway—Chaudière Curve to Chaudière and St. Rosalie to Montreal, including the Victoria Bridge and terminals in Montreal	140,000 00

No. 9.—INTERCOLONIAL RAILWAY.

General Stores Account, year ended June 30, 1906.

	Dr.	$ cts.	$ cts.		Cr.	$ cts.	$ cts.
1905. June 30..	To Balance	... .	1,171,129 68	1906. June 30..	By Issues during year.....	3,860,819 32	
					Sales material, fuel, &c.....	52,076 69	
1906.					Sales old material...	277.840 04	
							4,190,736 05
June 30..	To Purchases during year	3,692,365 18			By Balance—		
	Charges from other departments.....	713,886 00			Ordinary stores, including fuel	706,949 41	
	Labour, &c.	87,776 17			Steel rails and fastenings.	792,774 42	
	Staff pay rolls	19,302 85					1,493,723 83
			4,513,330 20				
			5,684,459 88				5,684,459 88

E. & O. E.,
Moncton, N.B.

T. WILLIAMS,
Chief Acct. and Treas.

No. 10.—INTERCOLONIAL RAILWAY.

GENERAL BALANCE, year ended June 30, 1906.

DR.		$ cts.	CR.	$ cts.
To Cash		31 69	By Dominion of Canada	2,255,777 83
Stations		197,100 30	C. P. Ry. traffic	20,599 79
Rents		6,255 14	Chatham Ry.	0 07
Transportation ledger		11,228 01	Suspense	3,513 50
General stores—			Dubs & Co.	98 63
Ordinary stores, including fuel	$700,949 41		Quebec Const. Co.	51 44
Iron and steel rails and fastenings	792,774 42		Elmsdale Co	1,190 18
		1,493,723 83	Department of Justice	1,000 00
To Dept. Accounts—			Unclaimed freight	790 35
Militia and Defence	$ 9,456 43		M. Lodge	2,101 69
Marine and Fisheries	4,077 17		G. T. R. track suspense	12,900 14
Public Works	15,363 01		Quebec Central Ry	7,966 63
Post Office	42,414 48		Temiscouata Ry	1,675 17
Agriculture	475 98		Illinois Central Ry.	1 00
		71,787 07	Salisbury and Harvey Ry	142 58
To Grand Trunk Ry.—Traffic	$ 88,876 12		Charlott town Steam Nav. Co.	804 86
" " General	16,033 41		McLean, Holt & Co.	600 94
		104,909 53	Canada Atl. and Plant Line	4 75
Dom. Atlantic Ry.—Traffic	$ 990 83			
" " General	2,965 28			
		3,956 11		
Can. Pacific Ry—General	$ 16,911 89			
" " (N. Bk. Div.)	5,981 03			
		22,892 92		
" " Rolling stock		22,446 90		
Caraquet Ry.		25,782 60		
Canada Coals and Ry. Co.		679 20		
Kent Northern Ry		6,036 34		
New Brunswick Ry. and Coal Co		44,693 98		
P. E. I. Railway		21,562 47		
Moncton and Buctouche Ry.		364 55		
Atlantic and Lake Superior Ry		6,910 95		
Cape Breton Ry		3 20		
Lotbinière and Megantic Ry.		36 19		
Elgin and Havelock Ry.		169 41		
Boston and Maine Ry		115 09		
Michigan Central Ry.		27 55		
Halifax and Southwest Ry.		5,674 86		
Pennsylvania Ry.		687 35		
Central Vermont Ry		9,058 38		
Canada Atlantic Ry		61 76		
New York Cent. and H. Riv. Ry		388 93		
National Desp. Line		206 57		

Maine Central Ry.	104 01
Inverness Ry. and Coal Co.	10,289 34
Newfoundland Ry.	735 93
Midland Ry. of Nova Scotia	6 80
New York, New Haven and Hartford Ry.	34 42
Wabash Ry.	11 52
Cumberland Ry. and Coal Co.	3,407 43
New Brunswick and P.E.I. Ry.	2,687 01
Hampton and St. Martin's Ry.	1,400 31
Beersville Ry. and Coal Co.	353 20
Rome, W. and O. Line	7 61
Texas Pacific Ry	3 94
Vandalia line	9 75
Missouri Pacific Ry.	2 97
Ballston Terminal Ry.	396 41
Quebec and Lake St. John Ry.	1 37
Great Northern Railway of Canada	56 04
Balt. and Ohio Ry.	1 73
G.T.R. Suspense	28 75
Chic., Ham. and Dayton Ry	1 05
Erie Ry.	5 50
Tobique Valley Ry.	2,739 25
York and Carleton Ry.	545 67
Delaware and Hudson Ry	82 71
Lehigh Valley Ry.	77 64
Chic., M. and St. Paul Ry	6 22
Pennsylvania Co.	586 65
Lake Shore and Mich. So. Ry	115 32
Imperial Oil Co.	1 45
Quebec Southern Ry.	27,236 52
Clev., Cin., Chic. and St. Louis Ry	5 13
Dela., Lacka. and Western Ry.	5 69
St. Johnsbury and Lake C. Ry.	4 04
Huntington and Broad Top Mtn. Ry.	0 49
International and Great Northern Ry.	0 41
Canadian Northern Ry	4 38
Père Marquette Ry.	56 97
Drummond Co. Ry.	7,199 87
Chicago and Northwestern Ry.	0 73
Pitts, Shawmut and Northern Ry.	
Receiver Quebec So. Ry.	2,753 95
Clev., Cin., Chic. and St. Louis Ry	8 22
National Desp. G. E. Line	2 32
Eastern SS. Co.	
Sherbrook Tank Line	1 29
Trans. Ry. Commission	0 42
Swift-Refrigerator Line	11 10
N.Y., Chic. and St. Louis Ry	15 43
Phil., B. and Wilmington Ry	5 28
Louisville and Nashville Ry.	5 62

No. 10.—INTERCOLONIAL RAILWAY—*Continued.*

General Balance, year ended June 30, 1906—*Continued.*

Dr.	$ cts.	Cr.	$ cts.
Pittsburg and L. E. Ry	6 38		
Canada Eastern Ry, general	0 42		
Chic. and North Western Ry	0 96		
St. Joseph S. B. and P. Ry	9 75		
Chicago Great Western Ry	0 91		
Chicago Rock Island and Pac. Ry	3 00		
Armour Car Lines	0 80		
Rutland Ry	19 20		
Chic. St. P., M. and O. Ry	3 29		
West Shore and Boston Ry	0 35		
Toronto, H. and B. Ry	35 75		
Merchant's Desp. Trans. Co.	2 77		
Central Branch Ry	0 67		
C., St. P. and Kansas City Ry	2 04		
Hocking Valley Ry	6 01		
Ala. and Vicksburg Ry	0 51		
Boston and Albany Ry	0 67		
Southern Pacific Ry	9 75		
Cinn. Northern Ry	1 00		
Northern Central Ry	5 18		
Street's Western Car Co	0 49		
Northern Pacific Ry	10 17		
California Fruit Express	19 56		
Atlantic Coast Line	11 47		
Ind., Ill. and Iowa Ry	2 24		
Minn., St. Paul and S. S. M. Ry	25 85		
Grand Rapids and Ind. Ry	0 73		
Phila. and Reading Ry	4 15		
Louisiana Western Ry	0 30		
Canadian Express Co.	14,618 16		
North Amer. Trans. Co.	2,347 33		
SS. *Minto*	268 14		
N. S. Steel and Coal Co.	1,867 06		
Dom. Iron and Steel Co.	1,320 68		
Acadia Coal Co.	3,032 05		
Intercolonial Coal Co.	474 41		
Londonderry I. and M. Co.	18,501 48		
Dominion Coal Co.	9,970 62		
SS. *Fashoda*	18 50		
I. C. R. Ins. Assn.	188 03		
Interprovincial Nav. Co.	10 92		
Governor General's Transp.	2,271 78		

American Loco. Co.		1,038 97
Central Telephone Co.		87 00
Western Union Telegraph Co.		298 63
Baldwin Loco. Co.		181 10
Standard Car Truck Co.		465 30
Montmagny L. and P. Co.		1,189 59
Royal Visit		9,264 25
Halifax Station Labour		1,000 00
Engr. Contract Co		518 68
Micmac Mining Co.		317 84
Car Victoria		32 70
Canadian Bridge Co.		14 50
Car Alexander		225 55
Washburn Co.		48 00
Loco. and Machine Co.		4 10
Sydney Cement Co.		898 55
Dom. Tar and Chem. Co.		10 00
Pullman Co.		7 00
Loco. Appliance Co.		77 33
Pictou Station Labour		200 00
Pictou Foundry Co.		754 01
Can. Iron and Foundry Co.		111 40
Minudie Coal Co.		1,783 58
Northern Nav. Co.		3 90
Phœnix Bridge Co		4 77
C. P. R. Telegraph		285 13
Robb Engineering Co		42 60
Portland Rolling Mills		859 27
Lake Superior Power Co.		145 59
Montreal Rolling Mills		279 28
SS. *Verda*		50 78
SS. *Lake Ontario*		17 04
Allan Steamship Line		1,892 13
Uncurrent and failed notes		82 20
Halifax and Cape Breton Ry.		1,151 42
Springhill and Parrsboro' Ry.		3,161 99
Cold Brook Rolling Mills		1,967 41
Western Co.'s Ry. general	$ 15,893 35	
" " traffic	64 57	
		15,957 92
Schooner *Mary Jane*		71 30
Remittances destroyed		788 81
Town of Dartmouth		32,000 00
St. John Street Railway		31 00
Elgin Branch Railway		726 10
Polson Iron Works		273 25
Union Bearing Co.		928 18
Dartmouth station	$ 8,013 73	
St. Hyacinthe station	8,879 05	
Forestdale "	6 34	

No. 10.—INTERCOLONIAL RAILWAY—*Concluded.*

General Balance, year ended June 30, 1906—*Concluded.*

Dr.	$ cts.	Cr.	$ cts.
Campbellton ticket station	$ 94 85		
Moncton freight "	20 00		
St. Anaclet station	11 00		
Eel River "	32 61		
Trois Pistoles "	97 37		
Athol "	4 44		
Shediac "	34 70		
Eureka Mills "	13 56		
Halifax freight "	887 49		
Nashes Creek "	6 25		
Rockingham "	27 47		
New Glasgow "	633 90		
Sackville "	10 17		
Wentworth "	33 24		
Amherst freight station	3 31		
Boiesdale "	7 80		
Memramcook "	7 54		
St. John freight "	3,096 46		
Red Pine "	20 00		
Nappan "	40 00		
Rivière du Loup ticket station	16 00		
" freight "	136 82		
New Castle station	102 75		
St. Alexandre "	25 90		
St. Louise "	0 66		
Nicolet "	39 53		
Derby Jct. "	231 04		
Campbellton freight station	25 00		
Kent Jct. station	28 38		
Gloucester Jct. station	78 87		
Iona "	72 71		
Isle Verte "	25 00		
Dalhousie "	19 69		
Valley "	6 65		
Bic "	22 00		
St. Arsene "	107 12		
St Luce "	80 00		
Coal Branch "	65 84		
Welford "	55 00		
Bloomfield "	25 21		

Nauwigewauk	"	3 00			
Glengarry	"	5 00			
			23,153 45		
Individual accounts			33,847 44		
Total			$2,309,219 55	Total	2,309,219 55

T. WILLIAMS,
Chief Acct. and Treas.

INTERCOLONIAL RAILWAY.

Individual Accounts, June 30, 1906.

Dr.

Price Bros	$ 1,336 02
Chas. D. Ruddock	130 00
Trois Pistoles P. & P. Co	73 82
O. Guérette & Son	36 92
Rhodes, Curry & Co	3,600 23
F. E. Came	2,760 70
J. Norris & Co	22 22
Ryan & McDonald	3,736 29
M. Beatty & Son	1 14
Purcell & Fallon	11,672 77
A. R. McDonald	2 76
T. Malcolm	912 76
S. Cunard & Co	510 21
Furness, Withy & Co	18 02
T. B. Calhoun	10 00
H. M. Price & Co	305 43
A. N. Whitman & Son	150 00
J. C. Brown	15 00
M. J. Haney	97 31
Capt. Newcombe	83 98
T. R. Campbell	3 00
S. Benoit	0 50
J. Hillis & Son	55 33
H. & A. Allan	4 50
Capt. J. A. Farguan	9 60
King Bros., Ltd	3 48
Wm. Roach	91 22
John Bertram & Son	151 73
G. S. Campbell & Co	11 47
Rathbun Co	1 50
Richards & Co	4 50
Leslie Hart & Co	0 25
W. C. Ross	0 43
J. H. McKay	60 84
E. F. Munroe	154 92
W. J. Hughes	40 00
J. W. C. McConnell	50 00
Geo. Skeffington	25 55
A. D. Ayer	25 00
Gray & Lawrence Bros	6 75
St. Francois Bridge Co	49 59
T. Atkinson	49 87
R. Hamilton	1,131 52
H. Atkinson	12 80
H. J. Cameron	1,679 07
J. J. McLeod	644 16
A. Forbes	82 18
P. E. Gallant	173 36
T. Cook & Sons	19 80
J. Richards & Son	116 24
Wallace Ross	33 70
J. N. Pouliot	352 20
R. A. & J. Stewart	41 39
Pickford & Black	159 34
L. R. Harrison	1,343 41
G. McDougall & Co	1,466 00
H. M. Hamilton	316 66
Total	33,847 44

No. 11.—INTERCOLONIAL RAILWAY.

Comparative Statement of Averages, June 30, 1906.

	1905.	1906.
Mileage of railway	1,414·67	1,445·92
Engine mileage	9,410,293	9,304,511
Train mileage	7,296,745	7,424,831
Car mileage	88,255,277	93,746,123
Receipts per engine mile.....Cents	72·08	82·15
" mile of railway.....Dollars	4,795·13	5,286·48
Percentage of passenger earnings to gross earnings	31·03	30·06
" freight " "	64·47	65·67
" other " "	4·50	4·27
Expenses per engine mile—		
Drivers, firemen and cleaners' wages.....Cents	7·95	7·96
Fuel "	15·81	15·13
Oil, tallow, waste and small stores "	·48	·42
Repairs to engines "	7·34	6·17
Water and tank repairs "	·51	·55
Miscellaneous "	·75	·96
Total	32·84	31·19
Mechanical superintendent's salary, office and travelling expenses	·28	·30
	33·12	31·49
Locomotive power per engine mile.....Cents.	33·12	31·49
Car expenses "	21·68	17·38
Maintenance way and works per engine mile "	18·30	15·02
Station expenses per engine mile "	9·97	11·10
General charges " "	5·69	6·30
	88·76	81·29
Less car mileage	·17	1·31
	88·93	79·98
Rental of leased lines	1·49	1·50
Total per engine mile	90·42	81·48
Locomotive power per train mile.....Cents.	42·71	39·46
Car expenses "	27·96	21·78
Maintenance way and works per train mile "	23·61	18·82
Station expenses " "	12·85	13·91
General charges " "	7 34	7·90
	114·47	101·87
Less car mileage	·22	1·64
Total	114·69	100·23
Rental of leased lines	1·92	1·89
Total per train mile	116·61	102·12
Working expenses per mile of railway :—		
Ordinary	5,915·74	5,146·83
Rental of leased lines	98·96	96·83
	6,014·70	5,243·66

T. WILLIAMS,
Chief Acct. and Treas.

E. & O. E.,
Moncton, N.B.

INTERCOLONIAL RAILWAY OF CANADA.

OFFICE OF THE SUPERINTENDENT OF MOTIVE POWER,
MONCTON, N.B., August 27, 1906.

SIR,—I have the honour to submit herewith the annual report of the operations of this department for the fiscal year ended June 30, 1906.

I might add that the general condition of the rolling stock is good, with the exception of cars and locomotives condemned, and shown in the attached report.

I have the honour to be, sir,
Your obedient servant,

G. R. JOUGHINGS,
Supt. of Motive Power.

D. POTTINGER, Esq.,
General Manager, Government Railways.

INTERCOLONIAL RAILWAY OF CANADA.

OFFICE OF THE MECHANICAL ACCOUNTANT,
MONCTON, N.B., July 31, 1906.

SIR,—I beg to submit the following report of the operations of the mechanical department for the fiscal year ended June 30, 1906.

A.—Statement showing the number of locomotives and the various classes of cars.

B.—Statement showing the locomotive and car mileage and the average number of passenger and freight trains hauled per mile run by locomotives.

C.—Abstract of locomotive returns.

D.—Statement of the cost of locomotive power for each month during the year.

E.—General statement of the expenses of the mechanical department.

Also a summary of the principal work done in the locomotive and car shops at Moncton, and in the shops at Rivière du Loup and Richmond.

During the year the following rolling stock was purchased on capital and on revenue account:—

On capital, to increase the equipment: 16 passenger locomotives, Pacific type; 5 combination second-class sleeping and baggage cars; 360 box cars; 25 refrigerator cars; 130 convertible dump cars; 20 vans; 10 wing elevator snow-ploughs; 2 double track snow-ploughs; 2 flangers; 5 steam cranes for handling coal; 2 ballast plough cars.

On revenue, to replace smaller type: 19 box cars, 60,000 lb. capacity.

The following rolling stock was rebuilt in the shops at Moncton during the year: 1 box car, 26 platform cars, 1 flanger.

Four new passenger locomotives were commenced and were well advanced when a fire, which partly destroyed the shops, occurred on the night of February 24, and put a stop to this work, and practically paralyzed all the regular work of the shops for several weeks.

The fire referred to above totally destroyed the paint shop, the freight car repair shop and the woodworking machine shop; and partly destroyed the boiler shop, brass foundry and the boiler room; and slightly damaged the iron turning shop. Temporary shops have been built to take the place of those destroyed, and those that were damaged have been repaired.

The following rolling stock was totally destroyed in the paint and car repair shops: 1 official car, 1 first-class sleeping car, 2 second-class sleeping cars, 1 dining car, 4 first-

class passenger cars, 1 second-class passenger car, 1 postal car, 2 express and baggage cars, 5 box cars, 7 platform cars, 1 twenty-ton coal car, 26 cars in all.

In addition to these 26 freight cars were more or less damaged.

All the small tools in the paint, car repair and woodworking shops were practically destroyed, and some of the machinery was so badly damaged that it was beyond repair and had to be replaced.

I have the honour to be, sir,
Your obedient servant,

J. J. WALKER,
Mechanical Accountant.

The following work was done in the shops at Moncton:—

MONCTON.

Locomotive shops.

124 locomotives received general, 10 heavy and 52 light repairs.

2 new boilers, 2 new fireboxes, 14 tube sheets and 6 side sheets were made and applied, besides 2 tube sheet and 7 side sheets patched.

22,753 tubes were repaired and put in boilers.
153 boilers were tested.
152 smoke stacks were made.
123 tenders received repairs.
2 new steel cabs were made.
4 wooden cabs were made.
44 pilots were made.
11,658 stay bolts were put in fire boxes.
73 fire boxes were patched.
70 engine truck and 20 tender truck wheels were re-tired.
176 driving wheels were re-tired.
563 pairs of engine and tender truck wheels were turned off.
348 pairs of driving tires were turned off.
21 crank pins and 16 cylinders were made and applied.
371,000 bolts were threaded.
10,058 studs were screwed.
101,800 lb. nuts were tapped.
127 engines and tenders were painted.

Blacksmith shop.

1,968,743 pounds iron forgings and 258,922 pounds steel forgings made.
532,633 bolts were forged.

Brass Foundry.

44,721 pounds brass castings were made.
266,755 pounds brass bearings were made.
15,386 pounds Babbit metal was made.
23,314 pounds antimonial lead was made.
756 sets metallic piston rod packing were made.
942 sets valve stem packing were made.

Special work was done as follows—

A large amount of work was done on store orders and on repairs to the ss. *Scotia* at Mulgrave.

A large amount of work was done in repairing the plumbing at stations and dwelling houses along the line.

All the station stoves from Moncton to Ste. Flavie, Richmond, St. John, Sydney and on the Canada Eastern Division were overhauled and repaired.

All the boilers, locomotive and stationary, from Moncton to Ste. Flavie, Richmond, St. John, Sydney and on the Canada Eastern Division were tested, reported on, and repaired where required.

There was also a large amount of work done on repairs to the Pintsch gas plant.

The following patterns were made:—

650 for brass castings.

400 for cast iron, malleable and steel castings.

100 patterns for cast iron, malleable and steel castings were remodelled.

The regular work of the shops was interfered with very much on account of the disastrous fire which destroyed part of the shops on the night of February 24, and in consequence the output of the shops for the year has been largely reduced.

The boiler shop and brass foundry, with all the contents, were badly damaged, and the machine shop, with a large part of the machinery, was also damaged, together with the large engine that runs the machinery.

A temporary engine was installed until the large engine could be repaired.

The boiler room was badly damaged and the boilers slightly.

After the fire the men were employed for some time in clearing up the ruins, and in repairing the buildings and machinery, and in getting the machinery in working order.

New machinery was purchased and set up in the place of that totally destroyed.

In the blacksmith shop two new forges were made and put up, one new steam hammer was installed, two new cranes were made and put in, one new shears put in, one new hydraulic spring buckling machine was made and put in, and one new No. 9 Sturtevant blower put in. The partition between the old and repaired shops was torn down and the two parts made into one shop. Truss work was put in to support the roof. There was also a large number of new tools made and put in use in place of those destroyed by the fire.

In the turning shop there were one large and two small bolt threading machines installed to replace the ones destroyed by the fire. One new 48-inch wheel lathe, one new 40-inch boring mill and one new slotter were installed during the year. These were badly damaged by the fire, but were repaired and put in use again.

Two new lathes, one new nut facing machine and one new Cleveland automatic turret lathe were installed.

Six new hoists or travelling cranes were put up in erecting shop.

The air compressor, large and small rollers, hydraulic pump, big shears and three punches were badly damaged by the fire, but were repaired and put in working order again.

The large plate roller was practically rebuilt after the fire.

The brass bush boring machine was repaired.

Two large travelling hoists in the boiler shop were repaired and about 250 feet of shafting and hangers were repaired and straightened out.

The work of rebuilding four new locomotives was commenced and the work was well advanced when the fire in February put a stop to the work.

Now that the shops are running again the work on these locomotives will be pushed with all possible despatch.

RIVER DU LOUP SHOPS.

29 locomotives received general repairs.
21 locomotives received medium repairs.
23 locomotives received specific repairs.

13 fire boxes were patched.
44 boilers were retubed.
69 boilers were tested.
192 driving tires were turned off.
74 engine truck tires were turned off.
292 tender truck tires were turned off.
2 side rods, 2 main rods, 3 crank pins, 3 cabs, 22 pilots and 1 tender frame were made and put in service.
57 engines and tenders were painted.
6,323 bolts were forged.
30,462 bolts were screwed.
2,148 studs were screwed.

The freight cars on this district were kept in repair and a large amount of work was done for other departments of the railway.

RICHMOND SHOPS.

15 locomotives received heavy repairs.
2 locomotives received medium repairs.
137 locomotives received specific repairs.
16 fire boxes were patched.
17 boilers were retubed.
45 boilers were tested.
36 driving tires were turned off.
122 engine truck tires were turned off.
766 tender truck tires were turned off.
3 crank pins, 7 pilots and 4 tender frames were made and put in service.
18 engines and tenders were painted.
19,484 bolts were forged.
48,562 bolts were screwed.
2,323 studs were screwed.

The freight and passenger cars on this district were kept in repair and a large amount of work was done for other departments of the railway during the year.

WATER SERVICE.

This service has been maintained in efficient condition over the whole line.

CAR SHOPS.

The following cars were rebuilt at Moncton: 1 box car, 26 platform cars, 1 flanger, to replace a similar number condemned.

The following rolling stock received heavy repairs: 3 official, 2 parlour, 28 sleeping, 5 dining, 111 freight cars, 1 steam crane, 7 flangers, 47 second-class, 19 postal, 31 baggage, 7 vans, 3 steam shovels, 8 snow ploughs, 6 wing ploughs.

The following rolling stock received medium repairs: 4 first-class, 2 baggage, 1 snow plough, 1 postal, 1 flanger.

The following rolling stock received light repairs: 78 first class, 30 postal, 1 parlour, 1 wing plough, 21 vans, 51 second-class, 29 baggage, 14 sleeping, 1 flanger, 5,720 freight cars.

The following cars were scraped, filled and varnished: 5 sleeping, 1 parlour, 1 dining.

The following cars were scraped and varnished: 4 first-class, 2 second-class, 6 colonist, 10 combined.

The following cars were painted and varnished: 31 second-class, 14 first-class, 4 baggage and express, 4 combined, 1 colonist, 11 vans.

The following cars were cleaned and varnished: 27 sleeping, 3 parlour, 13 colonist, 28 baggage and express, 11 dining, 68 first-class, 17 combined postal and smoking.

The following rolling stock was painted: 373 box cars, 50 gondolas, 9 snow ploughs, 3 steam shovels, 350 platform, 7 wing ploughs, 9 flangers, 1 steam crane.

Special work was done as follows: 5,550 new chilled wheels were pressed on axles, 2,365 second-hand chilled wheels were pressed on axles, 255 new steel wheels were pressed on axles, 260 second-hand wheels were pressed on axles, 1,050 new axles were turned, 320 freight cars were changed from link and pin to M.C.B. coupler, 238 freight cars equipped with Westinghouse air-brakes.

The following rolling stock was fitted with air signal appliances: 1 flanger, 4 wing ploughs.

The wings of one plough were made to open by compressed air.

The following rolling stock was equipped with straight air: 2 diamond flangers, 1 flanger with straight air and whistle pipe, 20 hand-cars were built, 11 hand-cars received heavy repairs, 7 new push cars were built, 5 push cars received heavy repairs, 50 hand-car wheels were built, 10 new cars were built for shop use and 8 new freight trucks were built.

In addition to the lumber prepared for the above repairs to cars, there was 206,143 feet of lumber milled on store orders.

A large amount of repairs was also done to chairs, ticket cases, station furniture and foot boards on store orders.

The fire, which occurred on February 24, totally destroyed a large part of the machinery in the car shops and seriously damaged the remaining part.

The following new machines were put in to replace those totally destroyed: Rip saw with iron table, band saw, turning lathe, variety moulder, boring machine, mortising machine, cutting off saw, rip saw and table, buzz planer, matcher and surface planer.

A new truck for hauling lumber, a bench for filing saws, an oil tank for car shop engine, a bench for carpenters' use and a case for tools were rebuilt after the fire.

The following machines were repaired and put in service after the fire: 1 large stationary engine, 3 wheel boring machines, 2 spindle drills, 4 emery wheels on shaft, 1 poney planer, 1 buzz planer, 1 machine for grinding planer knives, 2 wheel lathes, 2 spindle drilling machines, 1 vice for filing saws, 1 filing machine for filing band saws, 1 axle lathe, 2 air hoists, 1 hydraulic press.

All the shafting and pulleys were replaced and put in working order after the fire.

The output of the car shops for the year was largely reduced on account of the fire.

STATEMENT showing the number of Locomotives and of the other classes of Rolling Stock on July 1, 1905, and June 30, 1906.

	Locomotives.	First Class Sleepers.	Second Class Sleepers.	Parlour Cars.	Dining Cars.	First Class Passenger.	Second Class Passenger.	Postal and Smoking.	Express and Baggage.	Air Brake Instruction.	Box Freight.	Refrigerator.	Platform, 10, 15, 20 and 30 tons.	Tank Cars.	Hopper, 6 and 15 tons.	Gondola, 15 and 20 tons.	Coal Cars, 20 tons.	Stock Cars.	Convertible Dump Cars.	Vans.	Total.	Auxiliary Tool Cars.	Snow Ploughs.	Wing Ploughs.	Double-track Ploughs.	Flangers.	Rotary Snow Ploughs.	Steam Cranes.	Ballast Spreading Cars.	Total Cars.
On hand serviceable July 1, 1905	329	41	35	9	9	136	96	35	60	1	5,636	79	2,840	15	944	17	471	117	....	99	10	21	53	10	..	23	2	3	..	112
Condemned July 1, 1905	2	..	..	..	..	1	1	1	..	..	.....	5	.....	..	55	..	..	6	....	....	....	..	..	..	..	..	..	..	..	....
	331	41	35	9	9	137	97	36	60	1	5,636	84	2,840	15	999	17	471	123	....	99	10,7	21	53	10	..	23	2	3	..	112
Received during the year on capital account	16	..	5	..	..	....	..	..	..	..	360	25	.....	..	....	..	....	..	130	20	540	..	..	10	2	2	..	..	2	16
Changed from platform to tank cars	...	..	..	..	..	..	..	..	..	..	.....	..	10	10	....	..	....	....	....	....	....	..	..	..	..	..	..	..	..	...
	347	41	40	9	9	137	97	36	60	1	5,996	169	2,830	25	999	17	471	123	130	119	11,249	21	53	20	2	25	2	3	2	128
Condemned July 1, 1905	2	..	..	..	..	1	1	1	..	..	.....	5	.....	..	55	..	....	6	....	....	69	..	..	..	..	..	..	..	..	....
Condemned during the year	4	..	..	..	..	....	..	..	..	..	70	....	61	..	25	..	8	3	....	2	169	..	..	..	..	1	..	..	..	1
Destroyed by fire at Moncton	....	1	2	..	1	5	1	1	2	..	5	....	7	..	....	..	1	....	....	....	26	..	..	..	..	..	..	..	..	....
Total condemned	6	1	2	..	1	6	2	2	2	..	75	5	68	..	80	..	9	9	....	2	264	..	..	..	..	1	..	..	..	1
Rebuilt during the year	....	..	..	..	..	....	..	..	..	..	20	..	26	..	....	..	....	....	....	....	46	..	..	..	..	1	..	..	..	1
To be rebuilt	6	1	2	..	1	6	2	2	2	..	55	5	42	..	80	..	9	9	....	2	218	..	..	..	..	..	..	..	..	....
Add serviceable and repairing	341	40	38	9	8	131	95	34	58	1	5,941	104	2,788	25	919	17	462	114	130	117	11,031	21	53	20	2	25	2	3	2	128
Total equipment	347	41	40	9	9	137	97	36	60	1	5,996	169	2,830	25	999	17	471	123	130	119	11,249	21	53	20	2	25	2	3	2	128

E. & O. E.

MONCTON, N. B., June 30, 1906.

J. J. WALKER.
Mechanical Accountant.

B.—INTERCOLONIAL RAILWAY.

STATEMENT of Locomotive and Car Mileage year ended June 30, 1906.

MONTHS.	LOCOMOTIVE TRAIN MILEAGE.		CAR MILEAGE.						
	Passenger.	Freight.	Passenger.	Express, Postal and Baggage.	Freight.	Total.	Snow Ploughs.	Average Passenger.	Average Freight.
1905.									
July	305,341	339,867	1,184,323	485,619	5,667,296	7,337,238	185	5.46	16.67
August	310,374	364,852	1,218,402	494,165	6,127,313	7,839,880	76	5.51	16.79
September	255,505	361,028	1,047,706	435,412	6,255,916	7,739,034		5.80	17.33
October	214,316	357,776	787,496	378,338	6,226,300	7,392,134	1,379	5.44	17.40
November	201,682	366,375	728,071	373,798	6,295,852	7,397,721	556	5.46	17.18
December	208,980	401,152	764,377	392,935	6,833,608	7,990,920	6,603	5.54	17.03
1906.									
January	203,158	442,866	717,987	377,702	6,713,728	7,809,417	8,190	5.39	15.16
February	174,678	405,288	603,570	332,082	6,524,734	7,460,386	5,628	5.35	16.09
March	202,410	455,231	736,163	380,666	7,402,722	8,519,551	10,681	5.51	16.26
April	191,084	446,420	750,223	366,686	7,763,860	8,880,769	520	5.85	17.39
May	202,683	404,294	736,434	390,811	6,651,389	7,778,634		5.56	16.45
June	224,025	385,446	840,862	422,549	6,337,028	7,600,439		5.64	16.44
Total	2,694,236	4,730,595	10,115,614	4,830,763	78,799,746	93,746,123	33,818	5.54	16.66

J. J. WALKER,
Mechanical Accountant.

E. & O. E.
MONCTON, N.B., June 30, 1906.

C.—INTERCOLONIAL RAILWAY.

ABSTRACT of Locomotive Returns for year ended June 30, 1906.

MONTHS.	CONSUMPTION.						AVERAGE CONSUMPTION PER 100 MILES.				
	Hours in Steam.	Locomotive Mileage.	Tons of Coal.	Pints of Engine Oil.	Pints of Valve Oil.	Pounds of Waste.	Miles run to one hour in Steam.	Pounds of Coal.	Pints of Engine Oil.	Pints of Valve Oil.	Pounds of Waste.
1905.											
July	78,561	810,594	31,756	34,067	13,905	17,857	10.32	8,775	4.20	1.73	2.20
August	81,553	842,029	33,565	33,793	13,917	17,666	10.33	8,929	4.01	1.65	2.10
September	78,299	779,561	32,975	29,301	12,214	16,958	9.95	9,475	3.76	1.57	2.18
October	73,301	725,865	31,634	26,394	10,898	15,890	9.90	9,762	3.64	1.51	2.19
November	71,952	713,258	32,776	26,117	11,139	16,650	9.91	10,293	3.66	1.56	2.33
December	79,008	768,094	37,004	28,641	12,582	17,874	9.72	10,791	3.73	1.64	2.33
1906.											
January	82,252	809,382	37,974	33,275	13,894	20,911	9.84	10,509	4.11	1.72	2.58
February	74,145	727,316	34,776	27,000	11,187	17,327	9.81	10,710	3.71	1.54	2.38
March	83,653	822,048	39,568	32,031	13,431	19,711	9.08	10,782	3.89	1.63	2.40
April	79,172	789,619	35,118	31,884	13,008	19,992	9.97	9,962	4.04	1.65	2.53
May	75,099	758,156	31,848	30,825	12,908	19,772	10.10	9,409	4.07	1.70	2.61
June	74,245	758,589	29,257	30,589	12,014	19,340	10.22	8,638	4.03	1.58	2.55
	931,240	9,304,511	408,251	363,917	151,097	219,948	9.93	9,828	3.90	1.62	2.36

E. & O. E.,
MONCTON, N.B., June 30, 1906.

J. J. WALKER,
Mechanical Accountant.

D.—INTERCOLONIAL RAILWAY.

STATEMENT of Locomotive Power, for each month, from July 1, 1905, to June 30, 1906.

Month.	Miles run by Locomotives.	Superintendence.	Enginemen's Wages.	Fuel.	Oil and Waste.	Repairs to Engines, Tenders and Tools.	Water.	Engine Houses and Turntables1	Total.	AVERAGE PER 100 MILES.							
										Superintendence.	Wages.	Fuel.	Oil and Waste.	Repairs.	Water.	Engine Houses and Turntables.	Total.
1905.		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.								
July	810,594	2,211 36	64,218 83	112,292 33	3,782 12	47,413 27	5,041 87	5,551 86	240,511 64	27	7·92	13·85	·47	5·85	62	·69	29·67
August	842,029	2,449 21	66,302 85	115,406 62	3,305 53	49,948 69	4,132 52	6,372 26	247,917 68	·29	7·88	13·71	·38	5·93	·49	·76	29·44
September	779,561	2,266 38	62,020 17	112,814 10	2,752 68	46,071 86	5,547 92	5,193 19	236,666 30	·29	7·96	14·47	·35	5·91	·71	·67	30·36
October	725,865	2,345 38	59,675 77	110,767 13	2,783 78	45,861 14	3,646 84	6,197 90	231,277 94	·32	8·21	15·26	·38	6·32	·52	·85	31·86
November	713,258	2,279 25	57,959 62	112,917 67	2,787 09	51,634 90	4,600 85	7,853 60	240,032 98	·32	8·13	15·83	·39	7·24	·64	1·10	33·65
December	768,094	2,435 85	60,914 93	120,778 75	3,296 38	41,438 75	6,140 11	8,845 57	243,850 34	·32	7·93	15·72	·43	5·39	·80	1·15	31·74
1906.																	
January	809,382	2,103 20	63,851 48	127,503 49	3,798 70	52,671 42	10,394 37	10,128 17	270,450 83	·26	7·89	15·75	·47	6·51	1·28	1·25	33·41
February	727,316	2,182 42	55,717 23	118,568 33	2,919 00	51,901 08	4,018 98	9,548 67	244,855 71	·30	7·66	16·30	·40	7 14	·55	1·31	33·66
March	822,048	2,361 02	64,982 31	138,489 69	3,739 50	47,962 12	3,745 36	9,043 33	270,323 33	·28	7·90	16·84	·45	5·86	·45	1·10	32·88
April	789,619	2,208 02	62,977 43	125,997 49	3,759 55	52,095 98	4,411 20	7,846 67	259,296 34	·28	7·98	15·97	·47	6·59	·56	·99	32·84
May	758,156	2,354 35	62,669 92	114,324 08	3,354 71	42,659 55	3,831 55	6,640 53	235,834 69	·31	8·27	15·08	·44	5·63	·50	·87	31·10
June	758,589	2,265 17	59,091 63	97,543 05	2,896 26	44,844 09	4,325 82	6,743 67	209,058 05	·30	7·79	12·86	·38	5·91	·57	·89	27·56
	9,304,511	27,461 61	740,382 17	1,407,402 73	39,175 30	574,502 85	51,185 75	89,965 42	2,930,075 83	·29	7·95	15·13	·42	6·19	·54	·97	31·49

E. & O. E.,
MONCTON, N.B., June 30, 1906.

J. J. WALKER,
Mechanical Accountant.

E.—INTERCOLONIAL RAILWAY.

GENERAL STATEMENT of the expenses of the Mechanical Department for year ending 30 June, 1906.

The miles run by trains	7,424,851
" " engines	9,304,511
" " snow-ploughs	93,746,123
	33,818
Cost of locomotive power	$2,930,675 83
Cost of car repairs—	
Repairs to passenger cars	$167,767 08
" postal and express baggage	37,641 41
" freight cars and vans	419,976 88
Oil and waste for packing	8,994 07
Snow ploughs and flangers	16,799 54
	$651,178 98
The cost of locomotive power—	
For 100 miles by trains	$39 46
" " engines	31 49
" " cars and ploughs	3 92
The cost of repairs to cars and ploughs—	
Per 100 miles by trains	$8 77
" " engines	6 99
" " cars and ploughs	0 69
The cost for oil and waste for packing—	
Per 100 miles by trains	0 12
" " engines	0 09
" " cars and ploughs	0 02
The cost of repairs to cars per 100 miles run by them—	
Passenger	$1 66
Postal, express and baggage	0 78
Freight cars and vans	0 53
Ploughs and flangers	49 68

J. J. WALKER,
Mechanical Accountant.

E. & O. E.,
MONCTON, N.B., June 30, 1906.

INTERCOLONIAL

RETURN of Accidents and Casualties which have occurred in Canada on the

Date.	Time of Day.	No. of Train.	Description of Train.	Name of Conductor.	Name of Driver.	No. of Engine.	Place of Accident.
1906.							
July 1.	24.45	....	Shunter	Yardm'ter Laviolette	Bliss Lutes	120	Campbellton
" 8.	21.25	Spl.	Freight	N. Sirois	F. Gendron	300	Ste. Anne
" 10.	21.00	....	Shunter	Yardm'ter Laviolette	— Lutes	120	Campbellton
" 11.		153	Express	A. Bouchard	G. Goddard	200	Hadlow
" 15.	10.45	148	Freight	T. Dussault	H. Johnston	175	Carmel
" 19.	16.45	76	"	J. L. Hebert	J. Gorham	246	St. Arsène
" 21.	16.30	....				....	Levis
" 23.	1.40	Spl.	Freight	A. Jarest	J. Lacroix	92	Beloeil
" 28.	11.00	4	Express	J. W. Coles	W. J. Coffey — Sterling	192 42	St. John
" 29.	21.30	Spl.	Freight	D. Sweeney	J. King	292	Chatham Jct
Aug. 2.	4.20	47	"	J. Wilson	J. Quinn	72	L'Anse à Giles
" 4.	10.40	....	..	....	....	286	St. John
" 5.	....	....	..	....	....	....	Hadlow
" 7.	6.10	Spl.	Working	R. G. Duff	A. Russell	88	Gloucester Jct.
" 10.	22.35	75	Freight	W. J. Ellis	C. Skinner	291	Windsor Jct.
" 10.	15.10	153	Express	J. Huppe	L. Tardif	70	Montmagny
" 11.	6.00	452	Freight	H. Aubin	W. Brock	132	River Ouelle
" 14.	....	74	"	— Wood	— Fillmore	....	Oxford Jct.
" 15.	6.45	Spl.	"	Jos. Proulx	F. Gendron	265	St. Paschal
" 18.	24.00	....	....	....	....	....	Halifax
" 21.	23.00	9	Express	— Johnson	C. Edwards	156	Truro
" 21.	....	50	Freight	....	....	....	St. Jean Port Joli
" 22.	24.30	Spl.	"	M. Turgeon	P. Michaud	256	Hadlow
" 22.	....	....	....	....	....	....	Near Sydney
" 24.	15.00	....	Shunter	Foreman E. Harvey	R. Linden	18	Moncton
Sept. 2.	8.15	199	Express	John Berry	L. King	164	Bedford
" 15.	5 30	Spl.	Freight	A. Jarest	H. Duclos	91	St. Eugene
" 24.	3.00	12	Mixed	F. Palmer	J. Moody	243	Moncton
" 28.	16.10	Spl.	Freight	J. E. Fleming	J. W. Gunning	10	Trenton
" 29.	23.13	49	"	L. S. Poulet	Chas. Mercier	217	Hadlow
" 29.	....	....	....	....	....	....	St. Henri Jct.
" 30.	....	....	....	....	....	....	Bathurst
" 30.	13.00	26	Express	W. J. Dickson	Theo. Wilkins	314	Bloomfield

RAILWAY.

line of the Intercolonial Railway during the year ending June 30, 1906.

Name of Person Injured.	Whether Passenger or Employee.	Particulars of Accident.	Extent of Injury.	Verdict.
Albert Roy	Employee	While shunting, stepped on rail.	Foot badly injured.	
Alf. Maltais	"	Fell off tender of engine	Back injured	
A. Ayer	"	While coupling cars	Finger smashed.	
Donat Dechenes	"	Jumping off train	Arm and knee bruised.	
Alphonse Martin	"	Stepped on a nail	Foot injured	
Mrs. Thos. Therriault and daughter.	Neither.	Buckboard struck on public crossing.	Both badly bruised and wounded	
Indian	"	Walking over track and fell on rail.	Head badly cut.	
John Guay	Employee	While shunting, fell under car	Right hand and foot cut off.	
J. J. Gleason Mrs. Benj. Andrews. Mrs. Alice Mann Mrs. A. Keenan and child. Mrs. W. E. Hamil.l. Miss G. Driscoll	Passengers	Rough shunting	Slightly injured.	
D. Sweeney	Employee	While coupling cars	Finger jammed.	
Octave Veilleux	"	Fell off engine	Arm broken	
D. B. Stevens	"	While leaning out of cab window, head struck against lamp bracket on car.	Head injured	
Joseph Aubin.	Neither.	Found dead on Jalbert public road crossing.	Fatal	Accidental.
Leo. Harriman	Employee	Sleeping on track. Raised his head up as No. 34 train was passing and was struck.	"	"
Clifford Atkinson	Neither.	Supposed to have been stealing a ride and fell under cars.	Arm cut off	
Jos. Couillard (9 yrs) Geo. Couillard (6 yrs) B. Couillard (7 yrs).	Neither	On load of hay which was struck by train on crossing.	Cut and bruised.	
Louis Anctil	Employee.	While loading freight, piano fell on him.	Leg bruised	
E. Hunter	"	While shunting	Finger smashed.	
Theo. St. Jean	Neither.	Crossing between cars	Foot smashed	
E. McEachern	Employee.	Handle of semaphore flew up and struck him.	Head cut	
Joseph St. Amour	Neither.	Getting on train between engine and baggage car, fell and was run over.	Fatal	Accidental.
Geo. Lapointe	Employee.	While unloading freight, fell off gangway.	Head injured	
F. Parsons	"	Van caught fire and completely destroyed.	Hands burned	
Geo. Fergusson	Neither.	Found alongside track	Head badly cut.	
E. Harvey	Employee.	While shunting	Foot bruised	
John Fraser	Neither.	Struck by engine while working too close to track.	Arm broken	
J. Payne.	Employee.	Fell off box car	Two ribs displaced.	
R. Black	"	While uncoupling engine	Finger jammed.	
Dorrington (boy)	Neither.	Jumping on moving cars.	Foot smashed	
Donat Deschênes	Employee.	Struck by train	Hand cut	
A. Berube	"	While shunting	Slightly injured.	
G. W. Ellis	"	Loaded baggage train ran over foot.	"	
Corey Floyd Stanley Floyd.	Neither.	While driving across track on public crossing, team struck and men and horses killed.	Fatal	Accidental.

INTERCOLONIAL

STATEMENT of Accidents and Casualties which have occurred in Canada on the

Date.	Time of Day.	No. of Train.	Description of Train.	Name of Conductor.	Name of Driver.	No. of Engine.	Place of Accident.
1905.							
Oct. 4..	4.00	Spl.	Freight..	J. Bouthilette	J. Collett	163	Ste. Rosalie
" 12..	8.15	Spl.	" ..	J. N. Bernier.	W. Blanchet C. Beaudet	83 3	" "
" 18..	20.15	...	Shunter ..	Foreman J. Heffler..	M. Flavin	288	Halifax
" 22..	24.45	33	Express ..	A. McPherson	Geo. Milne	313	Barnaby River
" 23..	11.00	...	Shunter .	Foreman T. McDonald.	John Walsh	288	Halifax
" 23	17.00	....	" ..	" " " ..	"	288	"
" 25..	17.00	Spl.	Freight...	A. J. McDonald	H. Johnson	277	Spring Hill Junction
" 26..	.....	19	Express ..	W. McClafferty.	Jas. Clarke	236	Fair View
Nov. 2..	1.10	Spl.	Freight...	M. Wilson	H. S. Campbell	278	Calhouns
" 7..	15.10	89	" ..	Geo. Crawford	A. Sutherland	26	McCallum's Siding
" 7..	16.30	....	Pilot. ...	....	Geo. Roberge	110	Lévis
" 11..	15.35	86	Express ..	J. Craigié	A. McLeod	196	McIntyre's Lake
" 21..	19.30	....	Shunter ..	— English	D. G. McLean	287	Stellarton
" 22..	21.30	....	Suburban.	J. Creamer.	J. Martin	328	Loggieville
					G. Goddard	200	De Lotbiniere
" 22..	17.42	153	Express.	L. N. Letarte A. Gauvreau	E. Roy L. Filteau	194 181	" "
" 23..	17.55	13	" ..	F. A. Davison	B. Cook	166	Wellington
" 25..	21.00	....	Shunter ..	Foreman H. Barnes.	A. Wood	286	Moncton
" 26..	17.00	Spl.	Freight...	J. Tardif	J. Dussault	180	Blake's Crossing
					E. Mitchell	81	Near Mitchell Station
Dec. 1..	16.20	42	" ..	.....	.....	....	Matapedia
" 6..	10.00	Spl.	" ..	D. J. McDonald	A. Urquhart	178	New Glasgow
" 7..	14.20	....	Shunter ..	.....	Geo. Roberge	136	Lévis
" 8..	20.45	....	" ..	W. McGuin	Geo. Sears	120	Campbellton
" 9..	7.45	....	" ..	B. Dickie	J. Johnson	61	Truro
" 12..	24.00	....	" ..	G. W. Fisher.	....	....	"
" 14..	16.45	6	Freight...	Thos. Coffey.	J. Cook	305	Moncton
" 23..	13·00	....	.....	.....	.....	..	Near Piedmont
" 27..	15.25	147	Freight...	Chas. Couchy	J. Dussault	81	Drummondville
1906.							
Jan. 11..	20.00	84	Express...	J. A. Hughes	J. Brownell	62	Amherst
" 13..	.....	....	....	.....	Louis Dutil	168	Point St. Charles
" 16..	10.15	45	Express...	F. Dumond	F. W. Rioux	200	Levis
" 17..	16.19	97	" ..	W. Herbert	G. Harvey	21	Richmond
" 18..	16.55	Spl.	Freight..	W. J. Ellis..	A. Robbins	271	Oxford Junction
" 18..	9.12	41	" ..	J. B. Dubé	W. Duncan	214	St. Alexis

SESSIONAL PAPER No. 20

RAILWAY.

line of the Intercolonial Railway during the year ending June 30, 1906—*Continued.*

Name of Person Injured.	Whether Passenger or Employee.	Particulars of Accident.	Extent of Injury.	Verdict of Coroner's Jury.
Geo. Hetherington	Employee	Fell off tender of engine	Head and back injured.	
H. O'Meara	"	Jumping off train	Face injured	
John Hettler	"	While coupling passenger cars got jammed.	Back and chest injured.	
Martin Foley	Neither	Riding on velocipede on railway track and was struck by train.	Fatal	Accidental.
W. Pirie	Employee	Fell off of car	Head and shoulders.	
J. Hingston	"	Getting off of car	Ankle sprained.	
A. McNutt	"	While coupling cars	Foot jammed	
Walter Sharp	Passenger	Jumped off train in motion	Fatal	No inquest.
W. Osborne	Employee	Fell on tender of engine	Knee badly injured.	
Wm. Campbell	"	Fell out of car	Wrist bone broken.	
Octave Veilleux	"	Fell on tender of engine	Arm hurt	
Angus McKenzie	Passenger	Fell off train in motion	Head injured	
C. W. Taylor	Employee	While coupling cars	Thumb jammed.	
A. Pallen	"	" "	Fingers jammed.	
A. Gauvreau	"	Express train No. 153 ran into special train which was taking the siding.	Slightly injured.	
"	"	" "	" "	
"	"	" "	" "	
Ed. Whidden	Passenger	Jumped off train in motion	Collar bone put out.	
H. B. Barnes	Employee	While getting on car fell with hand on rail.	Fingers smashed and shoulder hurt.	
Oliver Nadeau	Neither	While driving over crossing team struck by train.	Fatal	Accidental.
"	"	" "	"	"
Wm. McKean	Passenger	Fell against edge of car door	Cut over left eye	
E. English	Employee	While getting on pilot of engine	Knee injured	
M. Samson	"	While shunting was struck by box car.	Head and arm injured.	
Fred. C. Steeves	"	Caught between cars while coupling.	Slightly injured.	
James Taylor	"	While working underneath car it was moved by shunter.	Fatal	Accidental.
G. M. Fisher	"	Fell off ladder while icing C.P.R. dining car.	Arm and shoulder injured.	
David M. Melanson	"	Run over by engine backing down round house.	Fatal	No inquest.
Unknown man	Neither	Supposed to have fallen from No. 19 train.	Slightly injured.	
Jos. Frechette	Employee	Unloading a switch stand from car.	Foot badly hurt.	
Wm Cormier	Neither	Struck by engine while trying to cross track in front of train.	Seriously hurt	
A. Vernier	Employee	Walking near track, going to work, and struck by engine.	Shoulder injured.	
O. Roulean	"	Struck by engine	Slightly hurt	
Jas. Eastman	Neither	Trespassing on track and struck by train.	Fatal	No inquest.
Ed. Fillmore	Employee	Getting off moving engine and fell between platform and train.	Leg cut off	
John McDonald	"	Struck by train	Shoulder hurt and one toe broken.	

INTERCOLONIAL

STATEMENT of Accidents and Casualties which have occurred in Canada on the

Date.	Time of Day.	No. of Train.	Description of Train.	Name of Conducto	Name of Driver.	No. of Engine.	Place of Accident.
1906.							
Jan. 22..	2 25	Spl.	Freight...	J. McLeod.....	F. Gibson.....	131	Rothesay.....
" 22..	2.25	"	" ..	"	A. Cook.....	46	" .....
" 26..	10.10	75	" ..	L. D. Proulx. . .	G. Begin.....	91	St. Germain.....
" 26..	15.50	153	Express...	F. Laliberte	L. Tardif.....	76	St. Charles.....
" 29..	5 30	...	... ..	.....	J. G. McDonald....	142	Stellarton.....
Feb. 2..	...	26	Express...	A. Ramine.....	John Ross.....	232	Truro.....
" 8..	...	...	... ..	.....	.....	...	Gloucester Junction....
" 9..	22.55	Spl.	Freight...	C. W Lutes.....	Thos. McCallum..	108	River Philip.....
" 9..	.....	...	.....	.....	John Kelly.....	143	" .....
" 19..	15.15	....	Shunter...	.....	Wm. H. Anderson..	286	St. John.....
March 3..	10.15	34	Express...	A. McPherson.....	J. J. Smith.....	320	Near Canaan.....
" 5..	20.30	....	Auxiliary.	A. Roy.....	A. J. McDonald....	150	Campbellton.....
" 7..	7.50	Spl.	Freight...	D. J. McDonald....	H. T. Cutten.....	146	Stellarton.....
" 19..	12.45	"	" ..	A. Bonneau.....	J. W. Dean.....	167	St. Madeline.....
" 19..	12.45	"	" ..	.....	W. Atkinson.....	166	" .....
2 23..	18.00	55	" ..	Newt Hopper.....	R. Kennedy.....	88	Cape Porcupine.....
" 27..	10.25	Spl.	" ..	D. Haines.....	R. Whalen.....	295	Eel River.....
" 28..	14.20	104	" ..	A. C. McLean.....	J. McRury.....	160	West Bay Road.....
April 3..	9.55	Spl.	" ..	J. Card.....	Geo. Stone.....	240	Harcourt.....
" 6..	16.00	....	Shunter...	.....	C. Sawyer	302	Riv. du Loup.....
" 11..	17 30	....	" ..	.....	H. Cummings.....	77	Stellarton.....
" 13..	18.25	353	Express...	M. Verville.....	J. Houston.....	83	St. Monique.....
May 2..	2.15	....	Shunter...	.....	J. Flavin.....	288	Halifax.....
" 3..	21.45	301	Express...	A. E. Logan.....	G. R. Logan	327	Chatham Junction.....
" 10..	15.00	...	Shunter...	.....	DeBoo.....	96	Chaudiere Junction..
" 15..	7.30	.	" ..	.....	J. McLellan.....	205	Halifax.....
" 17..	8.00	....	" ..	.....	J. Johnson.....	61	Truro.....
" 31..	17.15	Spl.	Freight...	E. Smith.....	G. Rushton.....	311	St. Moise.....
June 2.	15.30	....	Shunter...	S. F. McKeracher..	P. Fraser.....	15	Pictou.....
" 9..	11.15	....	" .	T. Berube.....	S. Levesque.....	196	Riv. du Loup.....
" 19..	8.40	Spl.	Freight...	H. G. Thompson...	Jas. Moody.....	336	Humphrey's.....
" 23 .	4.55	34	Express...	Geo. Walker.....	W. Price.....	344	Matapedia.....
" 26..	5.52	Spl.	Freight...	J. W. Coles.....	G. DeMill.....	313	Penobsquis.....
" 27..	14.15	89	" ..	Geo. Crawford	H. D. Stuart.....	146	Wallace.....
" 28..	14.50	....	Pilot...	T. Dussault.....	J. Frier.....	174	Fitch's Siding.....
" 29..	10.00	....	Shunter..	J. F. Kelly.....	J. H. Campbell....	66	New Glasgow.....
" 29..	16.00	Spl.	Freight...	M. McGillivray....	J. W. Gunning. ...	77	Marshy Hope.....
" 30..	14.20	"	" ..	A. Laliberte	C. Beaudet.....	82	Manseau.....
" 30..	14.20	"	" ..	.....	W. H. Toohy.....	181	" .....

SESSIONAL PAPER No. 20

RAILWAY.

line of the Intercolonial Railway during the year ending June 30, 1906—*Concluded.*

Name of Person Injured.	Whether Passenger or Employee.	Particulars of Accident.	Extent of Injury.	Verdict.
J. McLeod	Employee	Train parted and sections collided.	Slight injuries	
X. Tuttle	"	"	"	
J. St. Pierre	Neither	Struck by engine while walking on track.	Cheek cut	
Alph. Mercier	"	Struck by train while sleeping alongside track.	Fatal	Accidental.
Geo. Blois	Employee	Fell off tender of engine	Back injured	
John Dean	"	Gauge glasses burst	Neck badly cut	
H. M. Buckley	"	Grindstone fell on him	Leg badly bruised	
Thos. F. Doland	Neither	Struck by engine while walking on track.	Badly injured	
.....	.....	"	"	
Joseph Ingram	Neither	While unloading a car of lumber it was moved by engine, and he was jammed between load on team and the car.	Seriously injured	
Wm. Gardner	Passenger	Opened vestibule trap door and jumped off train.	Fatal	"
James Sargeant	Employee	Assisting in putting cars on track and foot caught between oil-box in car and lump of coal.	Foot badly jammed.	
D. E. McKenzie	"	While shunting fell off a box car.	Bone broken in foot.	
Mrs. J. Beauregard	Neither	Attempted to cross track in front of moving engine.	Fatal	"
.....	.....	.....	.....	
A. J. Forestall	Neither	Found alongside track; supposed to have been struck by train.	Fatal	"
Raoul Pineault	Employee	While coupling cars	Thumb jammed.	
Mrs. John McDonald	Neither	Attempted to cross track in front of moving train.	Fatal	"
H. Hachey	Employee	Cars went off track	Slightly hurt	
P. Belisle	"	Struck by engine	Fatal	"
E Sproull	"	" "	"	"
Alex. Champoux	Passenger	Fell off moving train	Slightly injured.	
W. Hibbits	Employee	While coupling cars	Thumb jammed.	
G. R. Logan	"	Stepping on to platform and slipped on frost.	Bone broken in leg and ankle sprained.	
A. Rheault	"	While uncoupling cars	Hand smashed	
Fred. Cameron	"	In getting off engine fell against a telegraph post.	Face badly bruised.	
Fred Duncan	Neither	Jumping on a moving car	Toes badly crushed.	
J. B. St. Pierre	Employee	While shunting	Leg slightly hurt.	
Edgar Reid	Neither	Jumping on moving cars	Fatal	"
Louis Gagnon	"	While walking on track struck by engine.	"	"
James Wood	"	Attempted to cross track in front of moving train.	"	No inquest.
Z. Barreau	"	Driving across track in front of moving train and was struck.	Not serious	
Freeman Leaman	"	Struck by train while walking on track.	Fatal	Accidental.
W. Campbell	Employee	While coupling cars	Fingers jammed.	
Robt Neil	"	While shunting was caught and crushed between car and platform.	Fatal	"
D. M. Bruce	"	While coupling cars was caught and squeezed.	Badly injured	
J. G. McLean	"	Tripped and fell between cars	Feet badly injured.	
H. Omara	"	Train broke apart and the parts collided.	Not serious	
A. Laliberte	"	"	"	

WINDSOR BRANCH RAILWAY.

OFFICE OF THE GENERAL MANAGER OF GOVERNMENT RAILWAYS,
MONCTON, N.B., August. 27, 1906.

SIR,—I have the honour to submit the following statements showing the results of the working of the Windsor Branch Railway for the year ended June 30, 1906.

No. 1.—Revenue account
No. 2.—Maintenance of Way and Works.
No. 3.—General balance.
No. 4.—Statement of Earnings.

I also send you the report of the Engineer of Maintenance on the condition of the permanent way and works.

This line, 32 miles in length, was operated during the year by the Dominion Atlantic Railway Company on the same terms as last year, the company being allowed to retain two-thirds of the gross earnings, the balance, one-third, being paid over to the government, the latter maintaining the line.

The gross earnings show a decrease, compared with those of the previous year, as follows :—

Earnings, 1905-6	$49,452 50
Earnings, 1904-5	50,038 67
Decrease	$ 586 17

The decrease was in both passenger and freight traffic.

The net earnings for the year were $31,966.53.

At Windsor a new passenger station was built, the freight house was moved to another site and a large addition made to it, as described in the report on capital expenditure by the Chief Engineer of the Intercolonial Railway.

The permanent way and works received necessary repairs and are in good order.

I have the honour to be, sir,
Your obedient servant,

D. POTTINGER,
General Manager, Government Railways.

M. J. BUTLER, Esq., C.E.,
Deputy Minister and Chief Engineer,
Department of Railways and Canals,
Ottawa, Ont.

INTERCOLONIAL RAILWAY.

OFFICE OF THE ENGINEER OF MAINTENANCE.
MONCTON, N.B., August 1, 1906.

SIR,—I have the honour to submit herewith the report of the maintenance of the Windsor Branch, for the year ending June 30, 1906.

TRACK.

During the past year 45,543 feet of 4-inch and 4¼-inch rails were taken out of the track, and the same quantity of 4¼-inch and 4½-inch relaid.

TIES

11,505 ordinary ties and 11 sets of switches were renewed during the year.

BALLASTING.

During the year 60 cubic yards of ashes were distributed and put under.

SWITCHES AND SEMAPHORES.

During the year necessary repairs were made to switches and semaphores and three sets of switch gear renewed.

SIDINGS.

During the year 1,654 feet of new siding accommodation was provided at different points.

FENCING.

Necessary repairs were made to existing fences.

BUILDINGS AND PLATFORMS.

Repairs.

Windsor, station.
Windsor, platform.
Windsor, engine-house.
Windsor, hay-shed.
Windsor, tool-house.
Windsor, freight-shed.
Mount Uniacke, station.
Beaver Bank, platform.
Beaver Bank, freight-shed.
Ellershouse, platform.
Newport, station.
Newport, freight-shed.
Newport, platform.
Three-Mile Plains, shelter.
Stillwater, platform.

BRIDGES AND CULVERTS.

Repairs.

Necessary repairs were made to all culverts where required.

GENERAL.

Repairs were made to cattle guards, road crossings, and gates, throughout the line, where required.

Glazing was done and glass put in, where required.

Outhouses and approaches to public road crossings were whitewashed, where necessary.

Semaphores and signals were painted where required.

Necessary repairs were made to hand-cars, trollies and wheel barrows, throughout out the line.

Ladders for semaphores and buildings were provided, where required.

I find that the Windsor Branch has been kept in its usual condition, being equally as good as heretofore.

I have the honour to be, sir,
Your obedient servant,

T. C. BURPEE,
Engineer of Maintenance of Way and Works.

D. POTTINGER, Esq.,
General Manager, Government Rys.,
Moncton, N.B.

No. 1.—WINDSOR BRANCH RAILWAY.

REVENUE Account, year ended June 30, 1906.

Previous Year.	Expenditure.	Year ended June 30, 1906.	Previous Year.	Earnings.	Year ended June 30, 1906.
$ cts.		$ cts.	$ cts.		$ cts.
26,863 16	Maintenance of way and works	17,485 97	13,829 22	Passenger traffic	13,651 54
23,175 51	Balance	31,966 53	35,064 66	Freight traffic	34,649 12
			1,144 79	Mails	1,151 84
50,038 67		49,452 50	50,038 67		49,452 50

T. WILLIAMS,
Chief Acct. and Treas.

E. & O. E.
MONCTON, N.B., June 30, 1906.

No. 2.—WINDSOR BRANCH RAILWAY.

MAINTENANCE of Way and Works, year ended June 30, 1906.

Previous Year.		Year ended June 30, 1906.
$ cts.		$ cts.
11,744 04	Repairs of track	11,014 56
420 93	Rails and fastenings	383 00
5,605 00	Ties	2,792 58
625 25	Bridges	552 63
18 24	Signals	9 50
106 49	Culverts, cattle guards, &c	83 80
	Wharf at Windsor	8 00
2,067 28	Buildings and platforms	868 64
10 10	Hand cars and trollies	
4,063 04	Removing snow and ice	155 73
206 80	Tools and repairs of same	181 88
830 05	Fencing	265 39
1,135 09	Accountant's office and expenses	1,138 48
30 85	Miscellaneous	31 78
26,863 16		17,485 97

T. WILLIAMS,
Chief Acct. and Treas.

E. & O. E.
MONCTON, N.B., June 30, 1906.

No. 3.—WINDSOR BRANCH RAILWAY.

GENERAL Balance, year ended June 30, 1906

1906.	Dr.	$ cts.	1906.	Cr.	$ cts.
June 30...	To Store Dept.	9,640 57	June 30...	By Dominion Account.	14,492 18
	Dom. Atl. Ry.	4,851 61			
		14,492 18			14,492 18

T. WILLIAMS,

Chief Acct. and Treas.

E. & O. E.

MONCTON, N.B., June 30, 1906.

No. 4.—WINDSOR BRANCH RAILWAY.

MONTHLY Statement of Receipts—One-third Earnings.

Month.	Passenger Traffic.	Freight Traffic.	Mails.	Totals.
1905.	$ cts.	$ cts.	$ cts.	$ cts.
July	1,575 40	2,082 15	96 91	3,754 46
August	1,848 73	2,318 66	96 91	4,264 30
September	2,433 27	3,724 03	96 90	6,254 20
October	1,255 53	4,618 54	96 90	5,970 97
November	639 91	4,701 48	94 46	5,435 85
December	1,012 19	2,497 77	95 68	3,605 64
1906.				
January	611 90	3,387 69	95 68	4,095 27
February	581 05	2,830 00	95 68	3,506 73
March	667 39	2,112 14	95 68	2,875 21
April	947 07	1,967 65	95 68	3,010 40
May	845 83	2,080 09	95 68	3,021 60
June	1,233 27	2,328 92	95 68	3,657 87
	13,651 54	34.649 12	1,151 84	49,452 50

T. WILLIAMS,

Chief Acct. and Treas.

E. & O. E.

MONCTON, N.B, June 30, 1906.

PRINCE EDWARD ISLAND RAILWAY.

OFFICE OF THE GENERAL MANAGER OF GOVERNMENT RAILWAYS.
MONCTON, N.B., August , 1906.

SIR,—I have the honour to submit the following reports on the working of the Prine Edward Island Railway for the fiscal year ended June 30, 1906.

I inclose the report of the superintendent, including statements of the various accounts, also the report of the chief engineer on the works charged to capital account.

The length of railway in operation on June 30, 1905, was 209 miles. On November 1, 1905, the line of railway known as the Murray Harbour branch, extending from Charlottetown to Murray Harbour, including the Vernon River branch between Lake Verde and Vernon, 52·3 miles in length, was opened for traffic, making a total mileage in operation on June 30, 1906, of 261·3 miles.

The expenditure on capital account during the year was $496,124.89.

This makes the total cost of the railway on June 30, 1906, $7,215,588.69. Of the expenditure during the year $118,295.17 was on account of the Murray Harbour branch and $75,733.99 for the Hillsborough bridge, which is a part of that branch ; $113,325.31 on account of a branch line from Cardigan to Montague Bridge, and $27,208.37 on account of a branch line to Vernon River Bridge.

The working expenses for the year were	$294,253 16
The gross earnings were	257,270 57
Difference	$ 36,982 59

The gross earnings show an increase of $39,939.96 over the previous year, the increase being in both passenger and freight traffic, and also in mails and sundries.

There was a decrease of $76,211.28 in the working expenses compared with last year.

The necessary work was done to maintain the permanent way and works, and the rolling stock, and they are in a state of efficiency.

I have the honour to be, sir,
Your obedient servant,

D. POTTINGER,
General Manager Government Railways.

M. J. BUTLER Esq., C.E.,
Deputy Minister and Chief Engineer,
Department of Railways and Canals,
Ottawa, Ont.

PRINCE EDWARD ISLAND RAILWAY.

OFFICE OF THE CHIEF ENGINEER,
MONCTON, N.B., August 3, 1906.

SIR,—I have the honour to submit the following report on capital account expenditure for the fiscal year ending June 30, 1906.

To increase accommodation at Georgetown.

The creosoted pile wharf and the extension to the freight shed, for which the contract was let last year, have been completed.

Freetown, dwelling for agent at.

This work was completed under contract by J. M. Clark & Co.

Enlarging freight shed at Port Hill.

This work was completed by days' labour.

Branch line to Vernon River Bridge.

The work in connection with the construction of this branch has been completed.

To increase accommodation at Kensington.

The new passenger station, for which the contract was let last year to M. F. Schurman & Co., was completed.

A new freight shed was provided under contract by M. F. Schurman & Co., and the necessary grading and track-laying required in connection with the same was done.

To increase accommodation at Charlottetown.

A contract was let for a new brick and stone passenger station, and the work of construction is going on. The land required for the site of new station was bought and paid for.

A quantity of creosoted material was delivered, to be used in connection with the proposed wharf.

The filling of the pond, required in connection with the rearrangement of the yard and tracks to the station, was done under contract with J. B. McManus, Ltd.

Murray Harbour Branch.

This branch was completed.

Hillsborough Bridge.

The work in connection with the substructure and the superstructure for this bridge was completed, and the bridge painted.

Turning gear and gasoline engine, required in connection with the swing span, were provided. Rest piers were provided for swing span.

The approaches to the bridge were macadamized, and electric semaphores, derailing switches, gates, &c., required were also provided.

Survey from Main Line to West Shore.

A preliminary survey and estimate were made for a branch line from the main line near O'Leary Station to West Point and McWilliam's Cove.

To improve water service.

The work of installing overhead water tanks, carried over from last year, has been completed.

Branch line from Cardigan to Montague Bridge.

This branch was completed.

Improvements at Summerside.

Additional sidings were provided, an approach was made, and a culvert extended. The turntable was removed, and a contract awarded J. M. Clark & Co. for a new 3-stall engine house.

Swing Span Morrell River Bridge.

The work in connection with the erection of this swing span was completed.

I have the honour to be, sir,
Your obedient servant,

WM. B. MACKENZIE,
Chief Engineer.

D. POTTINGER, Esq., I.S.O.,
General Manager, Government Railways,
Moncton, N.B.,

PRINCE EDWARD ISLAND RAILWAY.

SUPERINTENDENT'S OFFICE,
CHARLOTTETOWN, P.E.I., July 31, 1906.

SIR,—I have the honour to submit the following report of the working of the Prince Edward Island Railway, for the fiscal year ended June 30, 1906:—

I also inclose the report of the mechanical superintendent, and statements prepared by the accountant and auditor and the mechanical accountant and storekeeper.

No. 1. Capital account.
2. Revenue account.
3. Locomotive power.
4. Car expenses.
5. Maintenance of ways and works.
6. Station expenses.
7. General charges.
8. General store account.
9. General balance.
10. Comparatice statement of averages.

A. Monthly statement of the cost of locomotive power.

B. Statement of performance and consumption of locomotives.

C. Monthly statement of car mileage.

D. Statement of the number of locomotives, cars, snow ploughs and flangers.

E. Comparative statement of the expenses of the mechanical department.

The mileage of the railway in operation on June 30, 1905, was 209 miles. The Murray Harbour branch between Charlottetown and Murray Harbour, including the Vernon River branch between Lake Verde and Vernon, was opened for traffic November 1, 1905, the added mileage being 52·3 miles, making a total of 261·3 miles in operation June 30, 1906. The Montague branch was opened for traffic on July 1, 1906. The distance from the main line at Montague Junction to Montague is 6·2 miles.

CAPITAL ACCOUNT.

The total expenditure to June 30, 1905, was	$6,719,463 80
The additions during the year were as follows:—	
Enlarging freight shed at Port Hill	493 14
Survey from main line to West Shore	986 04
Dwelling for agent at Freetown	1,560 00
To increase accommodation at Kensington	3,969 76
To fit up locomotives and passenger cars for steam heating	6,994 59
Improvements at Summerside	8,000 00
To improve water service	10,200 00
To apply M.C.B. couplers to rolling stock	10,994 47
Swing span for Morell river bridge	15,000 00
To apply Westinghouse air brakes and air signals	19,987 89
To increase accommodation at Georgetown	19,996 99
Branch line to Vernon river bridge	27,208 37
To increase accommodation at Charlottetown	63,379 17
Branch line from Cardigan to Montague bridge	113,325 31
Hillsborough bridge	75,733 99
Murray Harbour branch	118,295 17
Making the total cost on June 30, 1906	$7,215,588 69

Enlarging freight shed at Port Hill.—This was completed by day's work.

Dwelling for agent at Freetown.—This work was completed under contract by J. M. Clark & Co.

To increase accommodation at Kensington.—A new freight shed was completed under contract by M. F. Schurman & Co., and the necessary track-laying and grading done.

To fit up locomotives and passenger cars for steam heating.—This work was done by the mechanical department.

Improvements at Summerside.—Additional sidings were provided, a concrete foundation laid down for a turntable, and a contract awarded J. M. Clark & Co. for a new three-stall engine house.

To improve water service.—The work of installing overhead water tanks, carried over from last year, has been completed.

To apply M.C.B. couplers to rolling stock.—These were applied to all rolling stock by the mechanical department.

To apply Westinghouse air brakes and air signals.—These were applied to all rolling stock by the mechanical department.

Explanations of other capital expenditures are to be found in the report of the chief engineer.

REVENUE ACCOUNT.

The earnings show a substantial increase over last year, apart from the revenue derived from the Murray Harbour branch. The crops were very good, and the winter much less severe than last year. The frequent thaws, followed by severe frost in March and April, made the roadbed very bad, and the service was very irregular for a period of two or three weeks.

The gross earnings and working expenses for the year compare as follows:—

Gross earnings	$257,270 57
Working expenses	294,253 16
Difference	$36,982 59

The gross earnings compare with the previous year as follows:—

In 1904-05	$217,330 61
1905-06	257,270 57
Increase	$39,939 96

The earnings from passenger traffic compare as follows:—

In 1904-05	$102,505 55
1905-06	114,053 82
Increase	$ 11,548 27

The earnings from freight traffic compare as follows:—

In 1904-05	$ 94,724 70
1905-06	121,621 58
Increase	$ 26,896 88

The earnings from mails and sundries compare as follows:—

In 1904-05	$ 20,100 36
1905-06	21,595 17
Increase	$ 1,494 81

The number of passengers carried compare as follows:—

	Number.
In 1904-05	235,194
1905-06	256,092
Increase	20,898

The weight of freight carried compares as follows:—

	Tons.
In 1904-05	75,969
1905-06	87,162
Increase	13,193

WORKING EXPENSES.

The working expenses compare with the previous year as follows:—

In 1904-05	$370,464 44
1905-06	294,253 16
Decrease	$ 76,211 28

The averages compare with the previous year, as follows:—

Per mile run by engines.

	Cents.
In 1904-05	83·72
1905-06	68·16

Per mile run by trains.

In 1904-05	107·91
1905-06	93·86

Expenditure per mile of railway.

In 1904-05	$1,772 55
1905-06	1,205 95

TRACK.

Twenty-six thousand railway ties, 23 sets switch ties, and 41 switch head-blocks with frames were renewed.

One thousand one hundred culled ties were used in yards and sidings.

Half a mile of 56-lb. steel rails were laid between Winsloe and Milton to replace 50-lb. rails; 175 feet of 56-lb. steel rails between Perth and Cardigan to replace old iron rails, and 500 feet of 56-lb. steel rails, and 4 steel frogs in yard at Charlottetown. Twelve hundred feet of 56-lb. steel rails, and 3 steel frogs with new switch gear were laid in yard at Tignish; 1,881 feet of 56-lb. steel rails, and 8 sets switch gear in yard at Georgetown; 290 feet of 56-lb. steel rails, 3 steel frogs and 3 sets new switch gear put in yard at Montague; 2,000 feet of new track and 6 frogs and switch gear laid at Charlottetown in connection with new station; and 1,300 feet of new track, 3 steel frogs, and 3 sets new switch gear laid in Summerside yard.

During the year 11 hand cars were repaired, and 6 new lorry tops and 12 track levels built.

SIDINGS.

At Conway a siding of steel rails and fastenings, 6,080 feet in length, was laid into ballast pit.

At Summerside a new siding, 162 feet, was laid to the location of new engine-house.

At Emerald, 1,200 feet of 50-lb. steel rails were laid on Y to replace old iron rails.

At Hunter River, 150 feet of 56-lb. steel rails were laid on siding to replace old iron rails.

FENCING.

There were 74,543 feet Page wire fence, and 3,763 feet barbed and web wire fence erected on cedar posts; 17,387 feet new snow fence built; 500 panels portable snow fence, 8 feet and 10 feet long, built and put up in places where most needed. During the winter temporary snow fences were also erected of brush and other material.

All fences received necessary repairs.

One hundred farm gates were renewed.

BALLASTING.

Two and one-half miles track were ballasted.

Five hundred cars of clay were put on Curtis Creek dump, 100 cars on Georgetown wharf, and 230 cars on dumps of Montague branch. Six hundred cars of ballast were put on Montague branch, and 100 cars on approaches to Morell bridge.

Four cars of clay were used in grading station grounds at Harmony, and 7 cars clay in grading station grounds at Selkirk.

BRIDGES.

At Cape Traverse, Bell's bridge received 15 hard pine ties.
At Cape Traverse, Reeve's bridge received 7 hard pine ties.
At Milton, Moar's bridge received 22 hard pine ties.
At Selkirk, Naufrage bridge received 33 hard pine ties.
At Souris, two overhead bridges on wharf received necessary repairs.
All other bridges needing repairs were attended to.

CULVERTS.

At Piusville, a new iron pipe culvert, 24 feet long, 16 inches diameter, was put in to replace a wooden one.

At Summerside, 270 feet of metal pipe, 14 inches diameter, was put in for yard drain. One new iron pipe culvert, 24 feet long, 16 inches diameter, was put in to replace wooden culvert. One reinforced concrete culvert, 88 feet long, was built, in which the following material was used : 77 barrels cement, 190 barrels sand, 385 barrels broken stone, 700 lbs. old iron rails and ¾ iron rods.

Twenty-six wooden culverts were rebuilt with cedar and other meaterial. Eleven stone culverts were repaired by using 9 barrels cement and 1½ cars of stone.

Twenty-nine cattle-guards were rebuilt with hard pine stringers, hemlock ties and hemlock mud sills.

WHARFS AND BREASTWORKS.

At Summerside, in repairing the wharf the following material was used : 1,000 cubic feet hemlock timber, 8,000 lineal feet hemlock plank, 3 kegs 60-dy. nails and 100 iron butt bolts. In building breastwork 1,848 cubic feet hemlock timber, 60 cull ties, 250 iron butt bolts and 1 keg 60-dy. nails were used. One new Ellis bumping post was erected on wharf.

At Souris, in repairing wharf 7 tons hemlock timber, 50 iron butt bolts and 1 keg 60-dy. nails were used. Five fenders were put on wharf.

At Georgetown, 3 new Ellis bumping posts were erected on wharf.

At Charlottetown, the following material was used in repairing breastworks : 47 tons hemlock timber and 300 iron butt bolts.

At Midgell, breastwork was repaired with stone and brush.

At St. Peters, 17 cars of stone were used in repairing breastwork.

BUILDINGS AND PLATFORMS.

Tignish.—Pit in engine-house was rebuilt. Station and agent's dwelling received necessary repairs.

Alberton.—A new coal-shed was built at station, and a new coal-shed for agent's house, for which the following material was used : 2 tons hemlock timber, 420 feet scantling, 500 feet hemlock plank, 2,500 feet hemlock boards, 2 kegs 12-dy. nails, 1 keg 60-dy. nails and 5 rolls roofing paper. A new station platform was made, for which 1,600 feet hemlock plank, 80 cull ties and 2 kegs 60-dy. nails were used.

Piusville.—A new station platform was made. in the construction of which 1,385 feet hemlock plank, 85 cull ties and 2 kegs 60-dy. nails were used.

Bloomfield.—A new Page wire fence was erected around agent's dwelling on turned cedar posts.

O'Leary.—Station platform was repaired, for which 400 feet hemlock plank and 1 keg 60-dy. nails were used. Station roof was repaired, and necessary repairs made to freight-house doors and windows.

Coleman.—Station platform was rebuilt. Material used : 450 feet hemlock plank and 1 keg 60-dy. nails.

Ellerslie.—Necessary repairs were made to station and dwelling.

West Devon.—A new coal-shed was built at water tank. Material used : 400 feet scantling, 800 feet hemlock boards, 2 rolls roofing paper, 1 keg 60-dy. nails and 1 keg 12-dy. nails.

Port Hill.—An addition of 25 x 20 feet was built to freight-house, for which the following material was used : 1,700 feet scantling, 1,600 feet hemlock boards, 15 M. cedar shingles, 7 rolls tar paper, 2 kegs 60-dy. nails, 1 keg 12-dy. nails, 1 keg shingle nails and 3 freight-house doors and frames. Roof of old freight-house was repaired with roofing tar and gravel. New freight-house was painted outside.

Miscouche.—A new dwelling was built for agent. Repairs were made to station and platform. A new wire fence was erected on turned cedar posts around agent's dwelling.

Summerside.—A concrete foundation was made for new turntable. Material used: 180 barrels cement, 17 cars broken stone, and 7 cars of sand.

Kensington.—A new station platform was made. Material used: 1,950 feet hemlock plank, and 2 kegs 60-dy. nails.

Freetown.—A new dwelling was erected for agent. A new Page wire fence was erected around agent's dwelling on turned cedar posts. Repairs were made to station and platform.

Emerald.—A new flue was built in station, for which 200 bricks, 1 barrel cement, 2 barrels sand were used. A new pantry was made for agent.

Cape Traverse.—Repairs were made to station and engine house. Agent's dwelling was papered and painted.

Bradalbane.—Repairs were made to station platform.

Hunter River.—Repairs were made to station windows and doors.

North Wiltshire.—Necessary repairs were made to station.

Royalty Junction.—Repairs were made to station platform and agent's dwelling.

Charlottetown.—Repairs were made to all buildings. Warehouse on wharf was removed up to yard and used by store department for a storehouse.

Bedford.—Station was painted inside and outside, and repairs made to platform.

Mt. Stewart.—Station platform was repaired.

Morell.—In making a new station platform the following material was used: 1,400 feet hemlock plank, 40 cull ties, and 1 keg 60-dy. nails. Repairs were made to station and agent's dwelling.

St. Peters.—Station platform was repaired.

Ashton.—A new coal shed was built at water tank. Material used: 400 feet scantling, 800 feet hemlock boards, 2 rolls roofing paper, 1 keg 60-dy. nails, 1 keg 12-dy. nails.

Bear River.—Necessary repairs were made to station and platform.

Harmony.—A new coal shed was built for water tank. Material used: 400 feet scantling, 800 feet hemlock boards, 2 rolls roofing paper, 1 keg 12-dy. nails, and 1 keg 60-dy. nails.

Souris.—Roof of freight house was shingled. A partition was built in freight house on wharf. Repairs were made to station and dwelling.

St. Teresa.—A new station platform was made. Material used: 2,000 feet hemlock plank, 80 cull ties, and 1 keg 60-dy. nails. A new cattle pen was erected.

48 Road.—Station platform was extended 32 feet, and built with new material.

Cardigan.—Agent's dwelling was papered.

Georgetown.—A new coal shed, 80 feet, was built. Roof of freight house on wharf was shingled. Engine house was repaired.

Montague.—One new Ellis bumping post was erected.

All other buildings requiring repairs were attended to.

STORES.

The value of stores purchased was	$183,998 25
The value of stores used was	231,952 70
The value of old material sold was	10,743 71

The value of stores on hand at the end of the year was:—

Ordinary stores	$ 33,231 46
Fuel	13,991 55
Old material for sale	25,821 86
	$ 73,044 87

GENERAL.

On November 30, 1905, fire destroyed the carpenter and blacksmith shop at Charlottetown, together with nearly all tools and machinery, and a number of other valuable assets. This loss has borne heavily on the expenditure for the current year.

The rolling stock, road-bed, and buildings have all received attention, and are in a state of efficiency.

I inclose a return of minor casualties which occurred during the year.

I have the honour to be, sir,
Your obedient servant,

G. A. SHARP,
Superintendent.

D. POTTINGER, Esq., I.S.O.,
General Manager, Canadian Government Railways,
Moncton, N.B.

SESSIONAL PAPER No. 20

PRINCE EDWARD ISLAND RAILWAY.

Details of Accidents for the year ending June 30, 1906.

Date.	Name, Address and Occupation of Persons.	Place of Accident.	Cause.	Nature and Extent of Injury.
1905.				
Aug. 18	Geo. Tanton, conductor, Charlottetown.....	Summerside ..	While getting off train	Injured ankle
" 5	Fred. Craswell, section labourer	Cardigan.....	Placing hand car on track.	Back injured.
" 24	E. Leeman, section foreman, Georgetown ..	Georgetown...	Piece lumber fell.....	Toe crushed.
Sept. 9	M. Berrigan, section foreman, Bedford.....	Bedford	Placing hand car on track.	Hip and back injured.
" 22	Angus Cameron, fireman, Charlottetown...	Charlottetown	Slipped on engine.. .	Broke wrist.
" 25	F. Christopher, brakeman, Tignish.....	New Annan ..	Coupling cars.....	Body squeezed
Oct. 2	Jos. McDonald, labourer, Charlottetown..	Charlottetown	Piece lumber fell.....	Toe crushed.
" 3	M. McKenzie, labourer " . ..	" ..	Rail fell.....	Toes crushed.
" 5	Jas. M. Enman, brakeman, Summerside ...	Tignish.....	Shunting cars.....	Body crushed.
Nov. 25	M. McKenzie, labourer, Charlottetown.....	Charlottetown	Struck by snow plough	Leg fractured.
Dec. 22	Wm. Harris, brakeman "	Vernon River.	Snow plough derailed.	Arm injured.
" 26	J. H. Burns, yardmaster, Summerside	Summerside ..	Coupling cars.....	Thumb crush'd
" 26	E. Moynagh, brakeman, Souris	Mt. Stewart..	"	Finger crushed
Jan. 18	Chas. Campbell, carpenter, Charlottetown..	Charlottetown	Falling plank.....	Head injured.
" 26	Robt. Hannah, driller " ..	" ..	Lifting draw bar... .	Back injured.
" 30	I. Clarke, brakeman, Cape Traverse..... ..	Cape Traverse.	Shunting	Ankle injured.
Feb. 7	Thos. Clarke, fireman, Summerside	Charlottetown	Fixing engine lamps..	Finger crushed
" 20	D. Dowling, section foreman, Charlottetown	Southport	Unloading cars	Top cut off thumb.
Mar. 5	A. Affleck, brakeman " ..	Charlottetown	Loading baggage.....	Back injured.
" 10	J. J. O'Reilly, brakeman " ..	" ..	Coupling cars	Thumb crush'd
" 10	Chas. Hines, labourer " ..	" ..	Lifting sill.....	Back injured.
" 26	E. Crosby, agent, Cape Traverse.....	Cape Traverse	Unloading baggage...	Ankle injured.
April 20	R. McWilliams, fireman, Charlottetown....	Souris.....	Coaling engine	Foot hurt.
May 26	Jas. Revelle, cleaner "	Summerside ..	Cleaning engine.....	Hand scalded.

Charlottetown, P.E.I., July 31, 1906.

No. 1—PRINCE EDWARD ISLAND RAILWAY.

DR. CAPITAL ACCOUNT. CR.

1905.			$ cts.	1905.		$ cts.
June 30.	To cost of road and equipment to date		6,719,463 80	June 30.	By Dominion of Canada	6,719,463 80
1906.				1906.		
June 30.	To expenditure, year ended June 30, as follows:—			June 30.	By Dominion of Canada	496,124 89
	Enlarging freight shed at Port Hill	$ 493 14				
	Survey from main line West Shore	986 04				
	Dwelling for agent at Freetown	1,560 00				
	To increase accommodation at Kensington	3,969 76				
	To fit up locomotives and passenger cars with steam heating	6,994 59				
	Improvements at Summerside	8,000 00				
	To improve water service	10,200 00				
	To apply 'M.C.B.' couplers to rolling stock	10,994 47				
	Swing span for Morell River Bridge	15,000 00				
	To apply Westinghouse air brakes and air signals	19,987 89				
	To increase accommodation at Georgetown	19,996 99				
	Branch line to Vernon River Bridge	27,208 37				
	To increase accommodation at Charlottetown	63,379 17				
	Branch line from Cardigan to Montague Bridge	113,325 31				
	Hillsborough Bridge $75,733 99					
	Murray Harbour Branch 118,295 17					
		194,029 16				
			496,124 89			
			7,215,588 69			7,215,588 69

CHARLOTTETOWN, P.E.I., June 30, 1906.

W. T. HUGGAN,
Accountant and Auditor.

SESSIONAL PAPER No. 20

No. 2.—PRINCE EDWARD ISLAND RAILWAY.

DR. REVENUE ACCOUNT for Year ended June 30, 1906. CR.

Previous Year.	Expenditure.	Year ended June 30, 1905.	Previous Year.	Receipts.	Year ended June 30, 1906.
$ cts.		$ cts.	$ cts.		$ cts.
109,541 81	Locomotive power, per Abstract No. 1	99,983 92	102,505 55	Passenger traffic	114,053 82
			94,724 70	Freight traffic	121,621 58
56,696 00	Car expenses, per Abstract No. 2	50,446 79	20,100 36	Mails and sundries	21,595 17
136,138 50	Maintenance of ways and works, per Abstract No. 3	74,801 87	217,330 61	Total receipts	257,270 57
			153,133 83	Balance	36,982 59
51,881 94	Station expenses per Abstract No. 4	51,977 13			
16,206 19	General charges, per Abstract No. 5	17,043 45			
370,464 44	Totals	294,253 16	370,464 44	Totals	294,253 16

W. T. HUGGAN,
Accountant and Auditor.

CHARLOTTETOWN, P.E.I., June 30, 1906.

No. 3.—PRINCE EDWARD ISLAND RAILWAY.

LOCOMOTIVE POWER.

Previous Year.	Details.	Year ended June 30, 1906.
$ cts.		$ cts.
2,519 79	Mechanical superintendent's salary, clerks, office and travelling expenses	2,789 10
31,420 60	Wages of drivers, firemen and cleaners	30,441 23
36,263 70	Fuel	37,833 50
1,842 61	Oil, tallow, waste and small stores	1,904 07
33,574 32	Repairs to engines, tenders and engine tools	20,693 27
819 10	Water, including pump and tank repairs	2,808 38
3,101 69	Miscellaneous	3,514 37
109,541 81	Totals	99,983 92

W. T. HUGGAN,
Accountant and Auditor.

CHARLOTTETOWN, P.E.I., June 30, 1906.

No. 4.—PRINCE EDWARD ISLAND RAILWAY.

Car Expenses.

Previous Year.	Details.	Year ended June 30, 1906.
$ cts.		$ cts.
6,013 08	Repairs to passenger cars	4,150 64
1,452 51	Repairs to postal, express and baggage cars	1,582 00
10,170 04	Repairs to freight cars and vans	6,196 17
1,820 41	Repairs to snow ploughs and flangers	461 61
30,303 43	Wages of conductors, train baggage masters and brakemen	31,480 40
666 94	Oil and waste for packing	728 22
4,679 01	Small stores and fuel	3,910 39
1,590 58	Miscellaneous	1,937 36
56,696 00	Totals	50,446 79

W. T. HUGGAN,
Accountant and Auditor.

Charlottetown, P.E.I., June 30, 1906.

No. 5.—PRINCE EDWARD ISLAND RAILWAY.

Maintenance of Way and Works.

Previous Year.	Details.	Year ended June 30, 1906.
$ cts.		$ cts.
384 02	Engineer's salary, clerks, office and travelling expenses	759 75
43,282 55	Wages in repairing roadway, fences and semaphores	54,895 05
5,399 79	Rails, chairs and spikes	2,520 10
20,732 36	Ties	4,772 03
8,618 91	Timber and lumber for repairs to bridges, cattle-guards, &c	2,780 23
5,310 04	Repairs to wharfs	255 71
6,548 63	Repairs to building and platforms	4,374 70
1,535 26	Repairs to tools	1,374 12
44,326 94	Clearing ice and snow	3,070 18
136,138 50	Totals	74,801 87

W. T. HUGGAN,
Accountant and Auditor.

Charlottetown, P.E.I., June 30, 1906.

No. 6.—PRINCE EDWARD ISLAND RAILWAY.

STATION EXPENSES.

Previous Year.	Details.	Year ended June 30, 1906.
$ cts.		$ cts.
41,995 98	Salaries and wages of station masters, agents, clerks, telegraph operators, station baggage masters, yardmasters, switchmen, watchmen and labourers	42,129 43
9,885 96	Fuel, oil, light, stationery and other incidental expenses	9,847 70
51,881 94	Totals	51,977 13

W. T. HUGGAN,
Accountant and Auditor.

CHARLOTTETOWN, P.E.I., June 30, 1906.

No. 7.—PRINCE EDWARD ISLAND RAILWAY.

GENERAL CHARGES.

Previous Year.	Details.	Year ended June 30, 1906.
$ cts.		$ cts.
8,223 65	Superintendent's and train despatchers' salaries, clerks, office and travelling expenses	8,292 08
5,570 49	Accountant and auditor's, paymaster's and cashier's salaries, clerks, office and travelling expenses	6,138 69
635 14	Advertising	414 93
795 91	Damage to men, animals and goods	1,375 40
676 98	Telegraph expenses (not including pay to operators)	133 07
304 02	Miscellaneous	689 28
16,206 19	Totals	17,043 45

W. T. HUGGAN,
Accountant and Auditor.

CHARLOTTETOWN, P.E.I., June 30, 1906.

No. 8.—PRINCE EDWARD ISLAND RAILWAY.

STATEMENT of General Stores Account, year ended June 30, 1906.

1905.	DR.	$ cts.	$ cts.
June 30..	To Balance brought forward		88,784 61
1906.			
June 30.	Purchases during the year, including rails	183,998 25	
	Charges from other departments	30,351 08	
	Pay rolls	1,863 63	
			216,212 96
	CR.		304,997 57
June 30..	By issues during the year		231,952 70
	Balance: Ordinary stores $ 32,778 96; Fuel 13,991 55; Rails and fastenings on hand 25,821 86; Old material serviceable 452 50		73,044 87

W. T. HUGGAN,
Accountant and Auditor.

CHARLOTTETOWN, P.E.I., June 30, 1906.

No. 9.—PRINCE EDWARD ISLAND RAILWAY.

GENERAL BALANCE.

	$ cts.		$ cts.
General Stores	73,044 87	Dominion account	76,536 64
Cash	3,212 35	Through ticket ledger	3,028 19
Stations	2,618 83	Rhodes, Curry & Company	1,433 20
Post Office Department	7,595 38	Gowrie & Blockhouse Collieries Company, Ltd	5,208 01
Militia Department	64 28		
Anglo-American Telegraph Company	46 42	Intercolonial Coal Mining Company	3,171 04
Judge Weatherbie	30 00	Eastern Trust Company	584 91
Sidney Grey	30 00	Willard Kitchen	1,363 12
Railway Extension, Charlottetown	812 33		
Accident Insurance	2,446 05		
Canadian Express Company	126 40		
Intercolonial Railway	1,168 37		
W. J. McCordock	93 94		
J. B. McManus, Limited	35 38		
	91,325 11		91,325 11

W. T. HUGGAN,
Accountant and Auditor.

CHARLOTTETOWN, P.E.I., June 30, 1906.

SESSIONAL PAPER No. 20

No. 10.—PRINCE EDWARD ISLAND RAILWAY.

COMPARATIVE Statement of Averages for years ended June 30, 1906 and 1905.

Details.	1906.	1905.
Mileage of railway open	261	209
Engine mileage	431,678	442,493
Train mileage	313,501	343,301
Car mileage	1,903,312	1,683,203
Receipts per engine mile....Cents	59.60	49.11
" mile of railway....Dollars	1,054.39	1,039.86
Percentage of passenger earnings to gross receipts	44.34	47.17
" freight " "	47.27	43.58
" other " "	8.39	9.25
Expenses per engine mile:—		
Drivers, fireman and cleaners' wages	7.05	7.10
Fuel	8.77	8.19
Oil, tallow, waste and small stores	.44	.42
Repairs to engines	4.79	7.59
Water and tank repairs	.65	.18
Miscellaneous	.81	.70
	22.51	24.18
Mechanical superintendent's salary, office and travelling expenses	.65	.57
Total....Cents	23.16	24.75
Locomotive power, per engine mile	23.16	24.75
Car expenses	11.68	12.81
Maintenance of way and works, per engine mile	17.33	30.77
Station expenses	12.04	11.73
General charges	3.95	3.66
Total....Cents	68.16	83.72
Locomotive power, per train mile	31.89	31.91
Car expenses	16.09	16.51
Maintenance of way and works	23.86	39.66
Station expenses	16.58	15.11
General charges	5.44	4.72
Total per train mile	93.86	107.91
Working expenses, per mile of railway....Dollars	1,205.95	1,772.55

Average mileage open for year 244, which was used for averages.

W. T. HUGGAN,
Accountant and Auditor.

CHARLOTTETOWN, P.E.I., June 30, 1906.

PRINCE EDWARD ISLAND RAILWAY.

OFFICE OF THE MECHANICAL SUPERINTENDENT,
CHARLOTTETOWN, P.E.I., July 5, 1906.

SIR,—I beg to submit herewith for your information the following statement of the operation of the mechanical department for the year ended June 30, 1906.

The following is a summary of the principal work performed:—

LOCOMOTIVES.

Eleven locomotives received heavy repairs, new driving boxes, new brasses, new side rod and main rod brasses, motion and running gear thorouhgly repaired, and stay bolts in boiler thoroughly examined.

Ten locomotives received specific repairs. We had three cylinder heads broken which we repaired, 6 pop valves, 8 whistles and 130 sets of steam packing were made. Twenty-eight pairs of driving wheels, 24 engine truck wheels, 72 car wheels, and 160 car axles were turned. Four hundred wheels were bored and pressed on axles,

and 1,400 tubes were pieced and put into locomotives. Twelve locomotive smoke stacks were made, one tender rebuilt, and 30 smoke jacks were made; 226,449 lb. of iron were forged, as was also 1,248 lb. cast steel and 1,681 lb. spring steel; and 12,126 lb. of nuts were tapped. Fifty driving springs and 75 engine truck springs were made, and 100 repaired. Westinghouse air brake was applied to 4 locomotives, steam heat to 11 engines, and M.C.B. couplers to 15 locomotives. Three locomotives received new driving tires, and we have a great deal of running gear, too numerous to mention.

CAR DEPARTMENT.

One full baggage car, and one postal and smoking car, under construction last year, were finished. One second class and baggage combined, and 10 box cars were built, and all charged to capital. Six flat cars were rebuilt. Fifteen flat cars, 25 box cars, 2 flanger cars, and 6 passenger cars recived heavy repairs. Twelve box cars, 10 flat cars, 2 flanger cars, and 2 snow ploughs received light repairs. Westinghouse air brakes were applied to 20 passenger cars and 262 freight cars; M.C.B. couplers to 41 passenger cars and vans, and 430 freight cars; and steam heat to 31 cars.

BRASS FOUNDRY.

Output: 12,810 lb. brass castings.

PAINT SHOP.

Nine passenger cars were painted and varnished, and 18 were cleaned and varnished. Twelve locomotives, 8 snow ploughs, 14 box cars, 20 flat cars, and 194 car roofs were painted; and 177 cars retarred. Sixteen hand cars, 50 switch frames, 7 settees for Montague branch, the new freight shed at Port Hill, and Brudenell bridge were also painted; and 1,500 panes of glass were put in buildings. Kensington station was painted inside and out; Cape Traverse station and dwelling inside; and Bedford station inside and out. Four men were employed for six weeks scraping and painting Hillsboro' bridge, preparatory to laying the ties.

ROAD AND TRAFFIC DEPARTMENTS.

Thirty-four loading platforms, 12 cattle stages, and 4 baggage and freight trucks were built; and 3 hand cars and 6 lorries were rebuilt. Twenty-six switch frames were made and mounted. Four boxes for papers, 10 coal boxes, 7 settees, 4 battery cases, 70 telegraph arms, 15 new frogs, 20 sets of new switch gear, 2 large sign boards, and 12 small ones were made. Thirty barrels of track plugs were cut. Thirty sets of switch gear, and 10 track ratchets were repaired. Six track lifters were made, and one bridge for Emerald was lengthened four feet, wind-braced and stayed.

On November 30, 1905, a fire started in our blacksmith shop, as we suppose, at 1.10 a.m. completely destroying the blacksmith and car shops, with all the machinery and patterns. It destroyed also the roofs of the power house, machine and erecting shops. This has been a great loss and inconvenience to the railway, as it left us without a single tool or pattern. The majority of the carpenters lost all their tools, which was a serious loss to them, as they are nearly all poor men.

I wish to say that Mr. Joughins has made every effort he possibly could to obtain new machinery for us, but it was very hard to get, and we have been at a great disadvantage, both for shop room and machinery. We have built a temporary blacksmith's shop, and repaired the power house and machine shop, and I am pleased to report that, although we have laboured under every disadvantage, our rolling stock is in a high state of efficiency, and equipped with all the most modern appliance of Westinghouse air brakes and M.C.B. couplers.

I have the honour to be, sir,
Your obedient servant,

G. A. SHARP, Esq.,
Superintendent P. E. I. Railway,

W. S. POOLE.
Mechanical Superintendent.

A.—PRINCE EDWARD ISLAND RAILWAY.

Mechanical Department.

Statement of Cost of Locomotive Power for the Year ended June 30, 1906.

Months.	Miles run by Engines, less Ballasting.	Cost of								Average Cost per 100 Miles.							
		Mechanical Superintendent's Salary, Clerks and Office Expenses.	Engineemen's Wages.	Fuel.	Oil, Waste, &c.	Repairs.	Engine houses and Turntables.	Water.	Total.	Mechanical Superintendent's Salary, &c.	Engineemen's Wages.	Fuel.	Oil, Waste, &c.	Repairs.	Engine house and Turntables.	Water.	Total.
		$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	$ c.	
1905—July	36,804	247 35	3,016 03	3,960 32	202 69	1,662 12	146 68	.....	9,235 19	0 67	8 19	10 76	0 55	4 52	0 40	0 00	25 09
August	34,171	245 68	2,787 96	4,069 52	199 38	2,407 66	132 99	1 15	9,844 34	0 71	8 16	11 90	0 58	7 04	0 39	0 93	28 81
September	35,747	248 12	2,547 64	3,129 88	166 64	2,013 26	272 73	2 47	8,380 74	0 69	7 13	8 76	0 46	5 63	0 76	0 01	23 44
October	35,510	251 96	2,786 92	2,836 35	170 19	1,384 13	290 68	11 34	7,731 57	0 71	7 85	7 99	0 48	3 89	0 82	0 03	21 77
November	39,507	136 70	865 47	1,007 38	58 01	112 84	164 64	2 75	2,347 79	0 33	2 19	2 54	0 13	0 28	0 41	0 06	5 94
December	38,607	261 55	2,851 32	3,879 22	209 83	1,591 97	493 90	477 98	9,765 77	0 67	7 39	10 05	0 54	4 12	1 28	1 24	25 29
1906—January	35,870	245 30	2,668 75	3,327 13	147 67	2,722 62	485 46	126 64	9,723 57	0 69	7 44	9 25	0 42	7 59	1 35	0 36	27 10
February	31,494	238 51	2,141 42	2,417 43	82 62	1,779 21	363 70	117 15	7,140 04	0 76	6 80	7 67	0 26	5 65	1 16	0 37	22 67
March	37,201	237 09	2,800 14	3,500 68	185 61	2,773 00	347 63	388 05	10,232 20	0 63	7 53	9 41	0 50	7 46	0 94	1 04	27 51
April	30,736	223 50	2,445 41	3,136 42	171 55	2,210 50	245 80	89 31	8,522 49	0 72	7 95	10 23	0 55	7 19	0 79	0 29	27 72
May	37,539	232 06	2,930 04	3,798 97	212 11	1,808 01	217 56	58 23	9,256 98	0 62	7 80	10 12	0 56	4 82	0 58	0 16	24 66
June	38,492	221 28	2,600 13	2,770 20	97 77	227 95	352 60	1,533 31	9,803 24	0 58	6 76	7 19	0 25	0 59	0 92	3 98	20 27
Totals	431,678	2,789 10	30,441 23	37,833 50	1,904 07	20,693 27	3,514 37	2,808 38	99,983 92	0 65	7 05	8 77	0 44	4 79	0 81	0 65	23 16

B.—PRINCE EDWARD

MECHANICAL

STATEMENT of the Performance and Consumption

MONTHS.	Hours in Steam.	TRAIN MILEAGE.				MILEAGE BY ENGINES.			
		Passenger.	Freight and Mixed	Ballasting.	Piloting.	With Train.	Light.	Shunting.	Total.
1905—July	4,735	13,776	13,555	7,529	450	35,310	86	10,682	46,078
August	4,404	11,949	13,237	7,526	96	32,808	100	9,944	42,852
September	3,902	12,378	13,573	1,653	514	28,118	111	9,411	37,640
October	4,279	11,073	14,567	2,536	172	28,348	159	10,869	39,376
November	4,655	11,020	17,860	2,519	31	31,430	154	11,002	42,586
December	4,181	10,773	16,944	338	158	28,213	270	10,492	38,975
1906—January	4,441	7,272	17,632	298	514	25,716	358	10,124	36,198
February	3,749	5,619	15,979		108	21,706	108	9,680	31,494
March	4,312	6,618	18,897		445	25,960	352	10,889	37,201
April	3,661	7,016	15,486		160	22,662	257	7,817	30,736
May	4,394	11,027	16,880	2,353		30,260	27	9,780	40,067
June	5,089	11,230	16,487	7,853	5	35,575	58	11,607	47,240
Totals	51,802	119,751	191,097	32,605	2,653	346,106	2,040	122,297	470,443

SESSIONAL PAPER No. 20

ISLAND RAILWAY.

DEPARTMENT.

of Locomotives for the year ended June 30, 1906.

TOTAL MILEAGE.		Average of Cars per mile run with train.	AVERAGE MILEAGE.		CONSUMPTION.				CONSUMPTION PER 100 MILES RUN BY ENGINES.			
Cars.	Snow Ploughs.		Miles to one hour in steam.	Of Cars to one of Engines.	Tons of Coal.	Pints of Oil.	Pints of Valve Oil.	Pounds of Waste.	Pounds of Coal.	Pints of Oil.	Pints of Valve Oil.	Pounds of Waste.
229,227	.....	6·57	9·73	4·97	1,074	2,444	844	703	5,221	5·30	1·83	1·53
210,808	.....	6·44	9·73	4·91	1,007	2,112	520	747	5,263	4·93	1·21	1·74
178,472	.....	6·46	9·64	4·74	796	1,748	560	566	4,737	4·64	1·48	1·50
185,173	.....	6 57	9·20	4·70	748	1,868	552	677	4,255	4·74	1·40	1·72
208,256	.....	6·63	9·14	4·89	899	1,988	496	714	4,729	4·67	1·16	1·67
173,424	2,286	6·18	9·32	4·45	970	1,932	640	703	5,574	4·95	1·64	1·80
136,266	2,956	5·40	8·15	3·76	869	1,813	464	692	5,378	5·01	1·28	1·91
124,098	616	5·74	8·37	3·94	707	1,548	388	579	5,028	4·91	1·23	1·83
132,680	2,058	5·20	8·62	3·56	836	1,652	460	695	5,034	4·44	1·23	1·86
129,609	321	5·76	8·39	4·21	774	1,584	456	661	5,640	5·15	1·49	2·15
197,224	.....	6·51	9·11	4·92	963	1,984	617	751	5,384	4·95	1·53	1 87
237,349	.....	6·67	9·28	5 02	1,028	2,748	872	935	4,874	5·82	1·84	1·98
2,142,586	8,237	6·23	9·08	4·55	10,671	23,421	6,869	8,423	5,080	4·98	1·45	1·79

S. F. HODGSON,
Mechanical Accountant.

C.—PRINCE EDWARD ISLAND RAILWAY.

Mechanical Department.

Monthly Statement of Car Mileage for year ended June 30, 1906.

Months.	First Class.	Second Class and Baggage.	Postal and Smoking.	Box and Stock.	Platform.	Total.
1905—July	46,980	24,886	39,839	56,957	60,565	229,227
August	32,592	22,038	37,373	56,696	62,109	210,808
September	38,383	24,127	34,078	56,614	25,270	173,472
October	28,196	21,808	33,774	80,007	21,388	185,173
November	27,476	22,196	38,063	89,173	31,348	208,256
December	29,666	24,539	30,774	69,197	19,248	173,424
1906—January	24,773	22,931	24,061	45,930	18,571	136,266
February	22,089	20,079	19,999	44,395	17,536	124,098
March	24,290	22,551	22,035	53,223	10,581	132,680
April	23,885	20,830	26,036	51,970	6,888	129,609
May	27,854	24,831	36,407	73,597	34,535	197,224
June	28,914	24,840	41,821	72,675	69,099	237,349
Total	355,098	275,656	384,260	750,434	377,138	2,142,586
Less—Ballasting	.....	.....	27,354	150	211,770	239,274
Net Mileage	355,098	275,656	356,906	750,284	165,368	1,903,312

S. F. HODGSON,
Mechanical Accountant.

D.—PRINCE EDWARD ISLAND RAILWAY.

Mechanical Department.

Statement showing the number of Locomotives and of the various classes of Cars and other Rolling Stock on July 1, 1905, and on June 30, 1906.

	Locomotives.	Classification of Cars.															Snow Ploughs.	Flangers.	Total.
		1st Class.	2nd Class.	Combined 2nd and Baggage.	Postal and Smoking.	Combined Postal and Baggage.	Baggage.	Pay Car.	Vans.	Box Freight.	Refrigerator Cars.	Stock.	Coal.	Platform.	Total.			
On hand, serviceable, June 30, 1905	27	23	12	5	4	3	5	1	3	223	3	21	21	145	469	9	9	18
Condemned, July 1, 1905	...	..	..	1	...	1	1	..	1	....	....	..	1	2	7	1	..	1
Total	27	23	12	6	4	4	6	1	4	223	3	21	22	147	476	10	9	19
Built during the year on capital account	....	..	..	1	....	....	..	..	..	10	....	..	..		11	..	..	...
Total	27	23	12	7	4	4	6	1	4	233	3	21	22	147	487	10	9	19
Condemned, July 1, 1905	...	..	..	1	....	1	1	..	1	....	....	..	1	2	7	1	..	1
" during the year	....	..	..	1	....	..	..	..	1	....	....	..	..	1	3	..	..	....
Burnt in shop fire, November 30, 1905	...	..	..	1	....	....	..	..	..	1	...	..	..	....	2	..	1	1
Total condemned and burnt	....	..	..	3	....	1	1	..	2	1	....	..	1	3	12	1	1	2
Less—Rebuilt	....	..	..	....	....	..	..	..	..	....	....	..	1	2	3	..	..	....
To be rebuilt	....	..	..	3	....	1	1	..	2	1	....	..	..	1	9	1	1	2
Add serviceable and repairing	27	23	12	4	4	3	5	1	2	232	3	21	22	146	478	9	8	17
Total	27	23	12	7	4	4	6	1	4	233	3	21	22	147	487	10	9	19

S. F. HODGSON,
Mechanical Accountant.

E.—PRINCE EDWARD ISLAND RAILWAY.

MECHANICAL DEPARTMENT.

COMPARATIVE STATEMENT of the expenses of the Mechanical Department for the years ended June 30, 1905 and 1906.

	1905.	1906.
The mile run by trains were	343,301	313,501
" engines were	442,493	431,678
" cars were	1,683,203	1,903,312
" snow ploughs were	58,902	8,237
	$ cts.	$ cts.
The cost of locomotive power was	109,541 81	99,983 92
" repairs to cars was	17,635 63	10,646 79
" " passenger car was	6,013 08	3,904 56
" " postal and smoking cars was	1,452 51	1,250 62
" " freight cars and vans was	10,170 04	5,491 61
" labour, oils and waste was	666 94	648 61
" repairs to snow ploughs was	1,820 41	451 61
The cost of locomotive power per 100 miles run by trains was	31 90	31 89
" " " engines was	24 75	23 16
" " " cars was	6 51	5 25
The cost of repairs to cars per 100 miles run by trains was	5 13	3 39
" " " engines was	3 98	2 46
" " " cars was	1 05	0 56
The cost of labour, oil and waste for packing per 100 miles run by trains was	0 19	0 20
" " " " engines was	0 15	0 15
" " " " cars was	0 03	0 03
The repairs to passenger cars per 100 miles run by trains were	1 75	1 24
" postal and smoking cars were	0 42	0 39
" freight cars and vans	2 96	1 75

PRINCE EDWARD ISLAND RAILWAY.

Accidents during year ended June 30, 1906.

Cause of Accident.	Passengers.		Employees.		Others.		Total.	
	Killed	Injured.	Killed	Injured.	Killed	Injured.	Killed	Injured.
1. Fell from cars or engine								
2. Jumping on or off trains or engines while in motion				1				1
3. At work on or near the track making up trains				4				4
4. Putting arms or heads out of windows								
5. Coupling cars				2				2
6. Collision or by trains thrown from track				1				1
7. Struck by engines or cars on highway crossings								
8. Walking, standing, lying, sitting, or being on track								
9. Explosions								
10. Striking bridges								
11. Other causes				16				16
Total				24				24

CANALS.

OFFICE OF THE SUPERINTENDING ENGINEER,
MONTREAL, July 31, 1906.

SIR,—I have the honour to submit herewith my annual report on the works under my charge, for the fiscal year ended June 30, 1906.

This division comprises the Lachine, the Soulanges and the Beauharnois canals, on the St. Lawrence route: the Ste. Anne, the Carillon and Grenville canals, on the Ottawa river, and the St. Ours and the Chambly canals, on the Richelieu river.

Of these, the Lachine canal is by far the most important on account of its immediate connection with the harbour of Montreal.

I am pleased to say that no serious accident occurred during the last fiscal year and that navigation was conducted without interruption, except on the Lachine canal, when traffic had to be suspended on May 30, and again on June 20 last.

The first interruption was due to the throwing down of the upper gates of the south lock No. 2, by the steamer 'Wahcondah.' Through some yet unexplained cause the vessel came into the lock at such a rate of speed that she could not be checked in time to avoid colliding with the gates. These were thrown down and very great damage and probably heavy loss of life would have ensued, had not a stopgate, which was lying down immediately above the mitre sill, raised automatically and successfully stopped the rush of water from Basin No. 2.

As explained in my report of June 1, last, that unexpected working of the stop gate prevented damage, which would certainly have amounted to hundreds of thousands of dollars, not to mention probable loss of life, Basin No. 2 being full of vessels of all classes at the time; among them seven or eight market steamboats with a large number of people on board.

Another accident took place on June 20 last, when the steamer 'Orion' struck the barge 'Alice' which was being towed out of the big lock, at Cote St. Paul.

The barge, which was loaded with coal, went down on top of the breast wall and was so badly broken that the whole of the cargo had to be removed before she could be floated again.

This necessitated the unwatering of the long reach of the canal. Work was carried on night and day, as soon as the water was low enough, and navigation was resumed at 3 a.m. on Sunday, the 22nd June.

LACHINE CANAL.

Length 8½ miles; 5 locks, 270 x 45 feet; 14 feet of water on sills; total rise 45 feet. Old locks, 200 x 45 feet; still available with 9 feet of water on sills.

REPAIRS AND RENEWALS.

The main items of work performed here during the year under the above head was as follows:—

Locks and Lock Gates.

The bottoms of most of the locks were thoroughly cleaned and the walls pointed, while the canal was unwatered last spring.

Two pairs of gates were built and three pairs of old gates overhauled during the winter; the former were placed in position at locks Nos. 4 and 5.

Bridges.

Except the new Atwater Avenue Bridge, all the swing bridges on this canal were replanked during the season and seven stationary bridges over the weirs and at lock approaches were also refloored and painted.

Masonry and Concrete Work.

The strengthening of exposed masonry work in the approaches of locks, bridges and basins was proceeded with last year. Strong blocks of concrete with steel plate facing were built at the following points:—

At the western end of the wall dividing flour shed basins Nos. 1 and 2; at the northeast end of the wall forming the northern side of Wellington basin; at the north-eastern entrance to north lock No. 3, and at the end of the pier between the two St. Gabriel locks.

At each place strong cast-iron mooring posts were inserted in the concrete.

Mooring Posts.

A hundred heavy cast-iron mooring posts were put in at various places, especially in the vicinity of the locks and bridges. It is the intention gradually to replace all the present wooden posts along the reaches by cast-iron ones, in order to reduce the cost of maintenance and make the navigation of the canal safer for heavy vessels.

Booms.

New booms were built during the year and placed as follows:—

One boom 250 feet long above St. Gabriel bridge.

One boom 250 feet long along the north side of the lower entrance to lock No. 4

One boom 250 feet long along the north side of the canal above lock No. 4.

Two booms 250 feet long each under the Canadian Pacific Railway bridge at Rockfield.

Several old booms were also repaired.

Buildings.

Considerable work was done to strengthen the floor of St. Gabriel shed No. 1, occupied by the Great Lakes Steamship Company.

The doors of the shed were also repaired, and a platform 500 feet long, 4 feet high and 16 feet wide was built alongside of the shed for the reception and delivery of freight on the outside of the shed.

Teams are no longer brought into the shed, and the cost of maintenance will thereby be considerably reduced in future.

A 20 feet extension was built at the south end of the blacksmith shop, which had become too small for present requirements.

Extensive repairs were made on the building leased to the Canada Horse Nail Company near the canal dry dock. They consisted of the renewal of a number of interior columns supporting the upper floor and roof. These columns rest on solid concrete piers. The over-hauling of the foundations of the outside walls, concrete being used, and the repairing of the brick walls on the south side of the building.

PLANT AND MACHINERY.

Pending the completion of a new gate lifter for this canal, the old gate lifter was overhauled and will be kept as a spare.

Three new machine tools were purchased during the year, and set up in the shops on Mill street, viz., one milling machine, one bolt cutter and one drilling machine. These make our equipment up-to-date, and will permit of all the iron work required in connection with the canal structures being done in our own shops.

INCOME.

Rebuilding Wall on South Side of Basin No. 2.

This work consisted of the facing of the old masonry wall on the south side of the basin with a heavy concrete wall from the top of the underpinning to the level of the bank, a height of 13 feet, and of some repairs to the mill flume through the old wall; also of the providing of timber booms for the protection of the new wall. The work was satisfactorily completed last summer by the contractors, Messrs. Quinlan & Robertson.

Rebuilding Wharf and Sidewalks at Lower Entrance to Lock No. 1.

The old cribwork on both sides of the entrance was removed to a line about a foot below the lowest water in the harbour and rebuilt with concrete faced with heavy cut stone. A cut-off was left in the wall on each side to receive the ends of a coffer-dam, should it become necessary to unwater the lock at some future time.

The contractors for this piece of work were Messrs. Quinlan & Robertson.

Rebuilding Lachine Wharf.

The old wharf consisted of detached cribs filled with stone. These were taken down to a line one foot below low water and rebuilt with concrete all round. The space between the walls of the pier thus formed was filled with stone. The bays between the piers were spanned with steel box beam girders, and a flooring provided over this structure and consisting of expanded metal covered with a thick layer of concrete. The whole of the roadway was afterwards macadamized.

The coping on both sides was protected by a steel plate nozing, strongly fastened to the concrete, and the ice breaker at the western end also covered with a steel protecting plate.

Timber waling pieces were also placed on both sides of the new wharf.

The work presents a neat and solid appearance. It was performed under contract by Messrs. Quinlan & Robertson.

Rebuilding Walls, St. Gabriel Basin No. 1.

This work was done by Messrs. Quinlan & Robertson while the canal was unwatered in April last. It consisted in removing the old timber walls for a height of 4 feet and rebuilding them in concrete.

The total length of wall built is 1,650 feet, of which a length of 400 feet is protected by a steel plate on the nozing of the coping.

Paving Approaches to Bridges.

Under this appropriation the approaches to Black's bridge, Brewster's bridge and Seigneurs street bridge were paved with granite blocks, laid on an 8-inch concrete foundation. In all about 3,000 square yards of paving were laid.

The work was done under contract by Messrs. Quinlan & Robertson.

Repairing Leak between Basin No. 1 and Lock No. 1.

As reported in July, 1906, a serious leak had developed under the spur wall and the chamber wall of Lock No. 1, owing to a streak of sand and gravel running through the hard pan on which these walls had been built.

The work done here to repair the damage and make the lock secure, consisted chiefly in deepening the foundation of the spur wall, building a deep concrete cut off across the lock entrance and rebuilding the bottom of the lock to a greater depth.

The work was successfully done by the original contractors, Messrs. Quinlan & Robertson.

CAPITAL.

Rebuilding Slope Walls.

This work is being done under contract by Messrs. Quinlan & Robertson.

The past year's operations consisted in the rebuilding of the vertical wall on the north side of the canal, from the Canadian Pacific Railway bridge to the old lock at Lachine. The old masonry wall was taken down to the rock foundation and concrete substituted, cast-iron niggerheads being inserted in place of the old wooden mooring posts.

There still remains about four miles of these slope walls to be rebuilt and in order to reduce the time of building, plans were devised during the year, whereby the work could be carried on without unwatering the canal. Operations will be resumed on these lines during the present season of navigation.

Dredging Basins, &c.

The appropriation for the above work was chiefly expended in dredging Basin No. 1 which was opened to navigation during the month of June last.

The work was performed under the efficient supervision of Mr. Wm. O'Brien, superintendent of dredging.

The total amount of material dredged out and placed to spoil was about 12,000 cubic yards.

All the works above described under the heads of capital and income were supervised by Mr. Henry R. Lordly, engineer in charge, and the repair work by Mr. D. O'Brien, overseer of the canal. Both are deserving capable officers, attentive to their duties, and I have much pleaseure in acknowledging here the valuable services they have rendered during the year.

Bridge at Atwater Avenue.

The superstructure of this bridge, the substructure of which had been built the year previous, was supplied and erected by the Dominion Bridge Company, during the months of April, May and June last.

This bridge is 205 feet long and 35 feet wide, the clear width of roadway being 26 feet, and of the side walks on either side, 3 feet. It was opened to traffic in June.

The Montreal Street Railway have secured permission to lay a track over it, the consideration for the privilege being the supply by the company of the necessary power to operate bridge.

ELECTRIC INSTALLATION.

Machinery for the operation of Lock Gates.

During the summer of 1905, the gates of old lock No. 4 (Côte St. Paul), were equipped with the appliances devised in this office for the operation of lock gates by electricity.

In order to make a practical test as to the efficiency of this machinery, several experiments were made in the presence of Mr. A. A. Dion, electrical engineer, who had been appointed by the department to make a report thereon and later in your own presence.

The tests having been found satisfactory, instructions were given to have a full set prepared, for the purpose of inviting tenders for the equipment of the ten locks on the canal.

The contract has since been awarded to Messrs. Lymburner & Mathews of Montreal.

At the date of writing the whole of the machinery is completed and the putting up of it on the gates will proceed without delay, it being expected that the locks will be electrically operated in the early part of September next.

The Atwater Avenue bridge contract and the devising of the machinery for the operation of the gates by electricity, were under the supervision of Mr. L. S. Pariseau, the details of the latter having been worked out by him.

SOULANGES CANAL.

Length, 14 miles; 5 locks, 270 x 45 feet; 15 feet of water on sills; total rise, 84 feet.

REPAIRS AND RENEWALS.

The structures of this canal received the usual amount of attention during the year. Considerable work was done in connection with the fences along the canal property.

The flooring of three of the swing bridges was completely renewed.

The bottom and slopes of Clement's Gully were lined with stone for a considerable length and a number of farm bridges repaired.

A quantity of stone was quarried out of the bed of River Delisle and used in renewing the stone lining on the canal slopes.

Two old scows were thoroughly overhauled.

INCOME.

Tugs and Scows.

The hulls of a flat scow and a smal tug were built during the year. The tug is 65 feet long, 12 feet beam, and will draw about 4 feet when completed. It will be fitted during the summer with two gasoline engines 20 or 25 horse-power each, and is intended for the canal repairs.

The scow is 80 feet long, 24 feet wide and 5 feet deep.

Ditches.

The collecting ditch along the north side of the canal opposite the power house was widened and deepened with a view to preventing further damage being done to farmers' lands. In order to make this ditch as effective as required, the breast walls at both ends of the Rivière à la Graisse culvert will have to be lowered about 15 inches.

This will be done at low water this summer.

The ditch along the north side of the canal from lock No. 3 to Clement's Gully, which discharged its waters both east and west, was deepened and given a single slope towards the gully. The drainage of the farmers near Lock No. 3 has thereby been very materially improved and no further damage by flooding or soakage is expected to take place in that section.

The drain between Lock No. 4 and Clement's Gully, which had proved too small to carry off the spring waters, was made two feet deeper and two feet wider

A new ditch about half a mile in length was cut along the south side of the canal between Cedars' bridge and Lock No. 4. Its purpose is to carry off water leaking through the bank, and which formerly found its way on to the farmers' lands.

The slopes of all these ditches were carefully lined with stone for a certain height and sodded above.

Electric Line.

The overhead wires connecting the main line with the bridge cabins have been replaced by submarine cables during the year. It was found that unless these wires

were laid with a considerable sag, the straining effect in the cabin was too great. On the other hand the sagging wire might at any time come in contact with some part of the bridge and create a short circuit, the result of which might have been serious. This was remedied, as stated above.

Land Damages.

The claim of Mr. Clement for damage to his land by water during the construction of the canal has been settled, the claimant giving a satisfactory discharge.

In the case of Mrs. Tremblay, negotiations could not be concluded before the end of the fiscal year.

Survey at Upper Entrance.

During the fall of 1905, soundings were taken in Lake St. Francis, in view of the proposed breakwater, for the protection of the upper entrance to the canal.

This matter will receive further attention this year.

CAPITAL.

Workshops.

Tenders for machine tools had been invited for this canal towards the end of the fiscal year 1904-05.

These machines were received and installed during the year. The shop equipment is now as follows:—

Carpenter shop.—15 horse-power electric motor, circular saw, band saw, jig saw, surfacer, planer, double head shaper, wood lathe.

Machine and blacksmith shop.—Screw power lathe, universal milling machine, screw cutting and nut tapping machine, upright drill, planer, the whole driven by two 5 horse-power motors. All the machines can be operated at a time, or singly as required.

All the works above described under the heads of Income and Capital were supervised jointly by M. L. S. Pariseau, engineer in charge, and the overseer, Mr. L. A. Sauvé, the latter also having charge of the repairs.

BEAUHARNOIS CANAL.

Length, 11¼ miles; 9 locks, 200 x 45 feet; 9 feet of water on sills; total rise, 82½ feet.

This canal is only being used for a few market boats and stray barges. The staff has been reduced to one man at each lock and isolated bridges and the three men in charge of ferries.

REPAIRS AND RENEWALS.

The structures on this canal received the ordinary attention during the year.

A number of farm bridges over the towpath were rebuilt, stone being substituted to timber, so as to minimize future maintenance.

One of the abutments of the bridge at St. Timothee was rebuilt with concrete. The bridge over the Lost Channel between St. Timothee and Grande Ile received a coat of paint.

The stone crushed last year was used in macadamizing the lower portion of the Hungry Bay dyke.

A new ditch 2½ miles long was made along that dyke, and 5½ miles of old ditch were thoroughly cleaned.

Three repair scows were overhauled, and extensive repairs made at the saw-mill and carpenter shop.

At the time of the construction of the canal a number of spare gates had been provided and sunk in one of the basins but had never been used. They were raised and found to be of a pattern that could not fit the locks in their present condition. They have been taken apart, and the material in them is being used for repairs.

The telephone line was overhauled last spring and the service much improved.

The breastwalls of the waste weir at locks Nos. 7-12 and 13, were taken down and rebuilt during the months of March, April and May last. All the waste weirs on this canal are now in good condition.

INCOME.

Ste. Barbe Dyke.

This dyke was completed during last winter, and the farmers can now proceed with their drainage works without this risk of the Lake St. Francis waters running into them.

The income work on this canal was supervised by Mr. L. S. Pariseau, and the repair works by the overseer, Mr. J. M. Deschenes.

STE. ANNE LOCK.

Length $\frac{1}{8}$ mile; 1 lock, 200 x 45 feet; 9 feet of water on sills; total rise, 3 feet.
Old lock still available, 200 x 45 feet, 6 feet of water on sills; total rise, 3 feet.

Repairs and Renewals.

Irrespective of the keeping of the lock and other structures in good repair, there were performed here a few special items of work, as follows:—

Renewing waling pieces and fender posts on the piers of the south channel.

Renewing the covering of the ouside wing pier above the locks, on a length of 400 feet.

Rebuilding a piece of masonry wall forming the east abutment of a small bridge on the north side of the upper entrance.

Building a repair scow 35 feet long, 12 feet wide and 3 feet deep.

The Canadian Pacific Railway Company commenced the widening of their bridge crossing the lock here in June last. This widening necessitated the moving of the overseer's house and out-buildings, as well as a shed, some 30 feet northwest of their positions. This work has been satisfactorily done at the expense of the railway company.

CARILLON AND GRENVILLE CANALS.

Carillon Canal.—Length $\frac{3}{4}$-miles; 2 locks, 200 x 45 feet; 9 feet of water on sills; total rise 16 feet.

Grenville Canal.—Length $5\frac{3}{4}$ miles; 5 locks, 200 x 45 feet; 9 feet of water on sills; total rise $43\frac{3}{4}$ feet.

Both of these canals are under one overseer. They are separated by a stretch of navigable river about 5 miles long, and between them is to be found the Old Chute à Blondeau lock, which was abandoned at the completion of the dam, at the head of the new Carillon canal in 1883, the rise at the old lock having been practically obliterated.

REPAIRS AND RENEWALS.

The various structures on these canals received the usual amount of attention and were kept in thorough repair during the year.

The only items of work worth mentioning here are:—

1. The placing of protection beams on some of the lock gates, which could not be equipped the year before. All the locks on both canals are now fully equipped with

these appliances which will certainly minimize if not entirely prevent the effect of collisions between vessels and gates.

2. The renewing of the furnace in the statistical officer's office, at Carillon.

3. The rebuilding of one of the lighthouses, at the head of the Carillon canal.

4. The completion of a carpenter shop at Carillon.

The Carillon and Grenville canals are now electrically lighted, two contracts for this service having been awarded last fall, the one for the Grenville canal, to Messrs. Ross & Sons, of Hawkesbury, the other for the Carillon canal to Messrs. Ayers & Hamelin, of Lachine.

The contractors provide the lines, lamps, &c., and maintain the whole, the department paying them a fixed sum, per arc and incandescent lamps, for the year or for the season of navigation, as the case may be.

The number of arc lights thus supplied is 90 on the Grenville canal, and 18 on the Carillon canal.

The service was inaugurated on the latter in the month of October, 1905, and on the Grenville canal at the opening of navigation in May last. It has given good satisfaction since.

INCOME.

Guide Pier, Lower Entrance to Grenville Canal.

The Guide Pier forming the south side of the lower entrance to the Grenville canal at Greece's Point, which was considerably decayed, was torn down to the level of low water and rebuilt.

The timber used was treated with a compound known as 'Carbolineum' for which it is claimed that it doubles the life of timber exposed to the weather.

GRENVILLE WHARF.

This work is now completed, except for the putting in position of a few waling pieces and the dredging of a point of land at the entrance to the steamboat basin.

As soon as the division dredge is through with some pressing work on the Lachine canal, she will be sent up to remove the point in question.

The wharf is substantially built of concrete on timber foundations.

The Resident Engineer on these canals, Mr. F. J. Lynch, died on January 5th last, after a long term of faithful service in the Department of Railways and Canals.

Upon his demise, Mr. J. T. Lemire, Assistant Engineer, in my office, was temporarily put in charge of the work, and has since practically pushed it to completion.

ST. OURS LOCK.

Length of canal, ½ mile; one lock, 200 x 45 feet; 7 feet of water on sills; total rise 5 feet.

REPAIRS AND RENEWALS.

The various structures on this canal were kept in thorough repair during the year, the main items of work done being as follows:—

Two new booms were built and placed between the upper piers above the lock.

A thick layer of broken stone was placed along the west side of the lock and well compacted.

The thick layer of broken stone was placed along the west side of the lock and well compacted.

The wrecking scow used here for the last two years in rebuilding the landing wharves, &c., was overhauled during the winter and is now ready for the summer operations.

The overseer's house was provided, during last spring, with a heating apparatus.

INCOME.

New Piers.

Four new piers were built here last year with a view to give additional mooring space above the lock.

Three of these are on the west side and the fourth one on the east side of the entrance. The former are built solid with concrete, resting on pile foundations

The latter is also laid on piles and built of concrete, but with a hollow chamber in the centre, the walls being 4½ feet thick, and the hollow filled with boulders.

New Booms.

About 275 lineal feet of booms were built and used to span the spaces between the concrete piers erected last year and the year before. They consist of three rows of square timber 12-inch x 12-inch, strongly fastened together by heavy screw bolts.

The income work on the St. Ours lock was supervised jointly by Mr. L. S. Pariseau and the overseer, Mr. Olivier Laverdure.

CHAMBLY CANAL.

Length, 12 miles; 9 locks 118 x 22½ feet; 6½ feet of water on the sills; total rise, 74 feet.

STAFF.

On August 1 last, Mr.P. B. Benoit, superintendent of this canal was transferred to the position of inspector of stores, on the canals of the province of Quebec, and Mr. P. A. Jodoin, appointed in his stead.

REPAIRS AND RENEWALS.

The chief items of work performed under the above head during the fiscal year just expired, are as follows:—

1. Building three pairs of gates and repairing some old ones. In a year or two every one of the nine locks on this canal will be provided with new spare gates.

2. Building a concrete sill at Lock No. 3. All the sills are now renewed in concrete.

3. Five old wooden culverts across the towpath were taken down and rebuilt, 24-inch vitrified clay pipe being substituted to timber.

4. A considerable amount of work was done on the ditches along the canal boundary line, one large ditch from the outlet of Denault's Culvert to the Richelieu river receiving particular attention. It is of considerable depth for a distance of a couple of hundred feet and with a view to reducing the cost of maintenance, an old iron pipe 3 feet in diameter, formerly used in connection with the Canal Power House, was laid at the bottom of the ditch, covered up with 2 feet of earth and this, as well as the slopes of the upper part of the ditch lined with stone.

In ordinary weather the pipe is large enough to take all the water issuing from the culvert and in time of flood the surplus water will find its way to the river by way of the ditch above.

5. The canal power house, which had been disturbed from its foundation by floating ice in the spring of 1905, was taken up from its former position on the shore of the river to new concrete foundations built at a higher level on the bank. The machinery is now installed in the building.

6. Two watch houses were built, one at Ste. Therese island bridge and another at lock No. 9.

7. Two new scows, each 53 feet long and 16 feet wide, were provided during the winter season. Both are equipped with a derrick, and are available for the present summer operations.

INCOME.

Swing Bridge at Riley's Crossing.

The old wooden bridge at this point was replaced during the year by a steel structure 66 feet long and 16 feet wide. The pivot pier and abutments are of concrete. The superstructure was supplied and erected under contract by the Phœnix Bridge and Iron Works, and the concrete work performed by the canal staff.

Macadamizing Towpath.

This work has been under way for two years. Last year's operations extended over a distance of a couple of miles. There still remains to be macadamized about one-half of the whole length of the towpath between Chambly and St. Johns. It is expected that the work will be completed during the summer of 1907.

Strengthening Bank at Ste. Therese.

From Fryer's waste weir northward for a distance of about one-third of a mile the canal is separated from the Richelieu river by a narrow made up bank, the bed of the river being 8 to 10 feet lower than the bottom of the canal. This bank has always been considered more or less dangerous. A portion of it having given way in 1905, permanent repairs were commenced without delay. A large quantity of stone was first dumped into the bed of the river as a foundation for the new wall and a protection against the swift current. The wall is built of large blocks of stone carefully put together. A length of 600 feet was commenced last year and brought up to the level of medium water, thus making the bank safe.

Operations will be resumed during the present summer.

Road West Side of Canal.

This work was continued during the months of May and June last, 4,000 feet of macadam being laid in the two months. There remains still to be done a section 600 feet in length, which will be completed during the present summer.

The income work on this canal is under the joint supervision of Mr. L. S. Pariseau and the superintendent, Mr. P. A. Jodoin.

I have the honour to be, sir,
Your obedient servant,

(Sgd.) ERNEST MARCEAU,
Superintending Engineer, Quebec Canals.

QUEBEC CANALS.

STATEMENT of the closing and opening of navigation.

Names of Canals.	Closing.	Opening.
Lachine Canal	2nd December, 1905	29th April, 1906
Soulanges Canal	2nd " 1905	23rd " 1906
Beauharnois Canal	30th November, 1905	1st May, 1906
Chambly Canal	30th " 1905	1st " 1906
St. Ours Lock	29th " 1905	18th April, 1906
St. Anne Lock	30th " 1905	19th " 1906
Carillon and Grenville Canals	30th " 1905	30th " 1906

LACHINE CANAL.

STATEMENT showing the depth of the river water on the mitre sills of new lock No. 1, at lower entrance, and new lock No. 5, at upper entrance, during the fiscal year ended June 30, 1906.

MONTHS.	NEW LOCK NO. 1, LOWER SILL.				NEW LOCK NO. 5, UPPER SILL.			
	Highest.		Lowest.		Highest.		Lowest.	
1905.	Ft.	In.	Ft.	In	Ft.	In.	Ft.	In.
July	17	7	16	6	17	2	16	3
August	16	11	15	9	16	8	15	8
September	16	4	15	7	16	3	15	8
October	15	10	15	2	16	1	15	6
November	15	10	15	0	15	11	15	4
December	23	11	15	3	15	10	14	11
1906.								
January	33	0	19	9	17	8	15	10
February	31	8	28	2	16	9	15	6
March	27	10	26	0	16	8	15	0
April	34	2	18	2	17	3	16	2
May	19	10	18	3	17	3	16	2
June	20	1	18	3	18	3	17	2

SOULANGES CANAL.

STATEMENT showing the depth of the river water on the mitre sills of lock No. 1, at lower entrance, and lock No. 5, at upper entrance, during the fiscal year ended June 30, 1906.

MONTHS.	LOCK NO. 1, LOWER SILL.				LOCK NO. 5, UPPER SILL.			
	Highest.		Lowest.		Highest.		Lowest.	
1905.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
July	18	6	18	2	17	8	17	1
August	18	4	17	6	17	4	17	1
September	17	7	17	5	17	4	17	1
October	17	4	17	3	17	3	16	9
November	17	5	17	3	17	2	16	5
December	17	7	17	2	17	1	16	5
1906.								
January	19	7	17	5	17	8	16	9
February	19	3	18	4	17	3	16	9
March	19	9	18	2	17	2	16	9
April	18	9	18	2	17	4	16	9
May	19	5	18	6	17	0	16	6
June	19	6	18	6	17	0	16	8

BEAUHARNOIS CANAL.

STATEMENT showing the depth of the river water on the mitre sills of Lock No. 6, at lower entrance, and Lock No. 14, at upper entrance, during the fiscal year ending June 30, 1906.

MONTHS.	LOCK NO. 6, LOWER SILL.				LOCK NO. 14, UPPER SILL.			
	Highest.		Lowest.		Highest.		Lowest.	
1905.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
July	11	6	10	6	12	3	11	7
August	11	0	10	4	11	11	11	4
September	10	4	10	2	11	9	11	3
October	10	4	10	2	11	7	11	2
November	10	4	9	10	11	7	10	10
December	9	10	9	7	11	9	10	10
1906.								
January	12	10	9	10	12	1	11	7
February	16	10	11	6	11	9	11	2
March	14	6	11	10	11	8	11	1
April	11	0	10	8	11	8	11	2
May	11	6	11	0	11	7	11	2
June	12	0	11	6	11	7	11	4

STE. ANNE LOCK.

STATEMENT showing the depth of the river water on the mitre sills of Ste. Anne Lock, during the fiscal year ending June 30, 1906.

MONTHS.	LOCK NO. 1, LOWER SILL.				LOCK NO. 1, UPPER SILL.			
	Highest.		Lowest.		Highest.		Lowest.	
1905.	Ft.	In.	Ft.	In.	Ft.	In.	Ft	In
July	12	2	11	4	12	6	11	8
August	11	6	10	10	11	10	10	8
September	11	0	10	8	11	0	10	6
October	11	5	10	6	11	5	10	3
November	10	9	10	3	11	4	10	9
December	10	11	10	5	11	5	10	6
1906.								
January	12	9	10	11	12	7	10	8
February	12	1	10	10	12	3	11	1
March	11	11	10	5	12	5	10	6
April	12	1	11	3	13	10	12	0
May	13	1	12	1	15	5	13	10
June	13	5	12	2	15	7	13	10

CARILLON CANAL.

STATEMENT showing the depth of the river water on the mitre sills of Lock No. 1, at lower entrance and Lock No. 2, at upper entrance, during the fiscal year ending June 30, 1906.

MONTHS.	LOCK NO. 1, LOWER SILL.				LOCK NO. 2, UPPER SILL.			
	Highest.		Lowest.		Highest.		Lowest.	
1905.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
July	13	10	12	11	13	9	12	5
August	13	1	11	10	12	5	11	1
September	12	0	11	8	11	6	11	0
October	12	7	11	5	12	5	10	10
November	12	7	12	0	12	3	11	5
December	12	8	11	10	13	5	11	0
1906.								
January	14	6	11	10	15	0	12	6
February	13	10	12	9	14	11	12	8
March	14	2	11	8	14	0	10	7
April	15	4	13	6	15	6	11	9
May	17	3	15	5	17	6	15	4
June	17	3	15	4	17	7	15	5

cases.

GRENVILLE CANAL.

STATEMENT showing the depth of the river water on the mitre sills of Locks Nos. 3 and 7, Grenville Canal, for the fiscal year ending June 30, 1906.

MONTHS.	LOCK NO. 3, LOWER SILL.				LOCK NO. 7, UPPER SILL.			
	Highest.		Lowest.		Highest.		Lowest.	
1905.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
July	16	6	15	2	14	0	12	7
August	15	5	13	6	12	11	10	9
September	13	10	13	3	11	4	10	4
October	14	10	13	2	12	3	10	4
November	14	8	13	11	12	2	11	5
December	15	6	13	7	12	0	10	9
1906.								
January	18	2	13	7	13	11	10	8
February	18	6	15	4	13	3	11	5
March	16	2	13	6	13	5	10	4
April	18	11	15	1	16	4	12	9
May	21	7	18	9	18	8	16	4
June	21	5	19	0	18	6	16	2

ST. OURS LOCK.

STATEMENT showing the depth of the river water on the mitre sills of St. Ours Lock, during the fiscal year ending June 30, 1906.

MONTHS.	LOCK NO. 1, LOWER SILL.				LOCK NO. 1, UPPER SILL.			
	Highest.		Lowest.		Highest.		Lowest.	
1905.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
July	10	11	9	2	10	9	9	8
August	10	3	8	6	10	6	9	6
September	9	6	8	4	10	3	9	5
October	9	4	8	3	10	0	9	2
November	8	9	7	3	9	8	8	10
December	11	8	8	3	9	2	8	8
1906.								
January	15	6	10	3	12	6	8	11
February	12	11	10	8	10	5	9	4
March	13	3	10	3	11	1	9	8
April	13	5	12	0	11	10	10	4
May	13	9	12	2	12	0	10	11
June	13	4	10	10	11	10	10	3

CHAMBLY CANAL.

STATEMENT showing the depth of the river water on the mitre sills of Lock No. 9, at lower entrance and Lock No. 1, at upper entrance, during the fiscal year ending June 30, 1906.

MONTHS.	LOCK NO. 9, LOWER SILL.				LOCK NO. 9, UPPER SILL.			
	Highest.		Lowest.		Highest.		Lowest.	
1905.	Ft.	In.	Ft.	In.	Ft.	In.	Ft.	In.
July	12	10	11	4	10	0	8	11
August	12	6	11	0	9	10	8	7
September	12	1	10	10	9	6	8	9
October	11	9	10	3	9	3	8	6
November	10	10	9	6	9	8	7	10
December	10	11	9	9	8	10	8	3
1905.								
January	16	11	10	7	9	11	8	4
February	13	2	11	10	9	9	9	0
March	14	6	11	8	9	8	9	0
April	14	4	12	0	11	0	9	7
May	14	3	13	2	11	0	9	8
June	14	5	12	2	10	3	9	4

LACHINE CANAL.

STATEMENT of Fines and Damages collected during the fiscal year ending June 30, 1906.

Dates.	Name of Vessel.	Name of Owner.	Fines.	Damages.	Remarks.
1905.			$ cts.	$ cts.	
Aug. 11.	Yacht *Marguerit*...	J. H. Rutherford....	.. ..	15 03	Collides with Seigneur street bridge.
Nov. 3.	Steamer *Indianapolis*	J. H. Lent.....	.. ..	30 00	Damages to N. Gate Lock No. 1.
1906.					
May 28.	" *Garnet*.....	M. & Cornwall Nav. Co	.....	11 92	Collides with Seigneur street bridge.
" 30.	" *Wahcondah.*	New Ontario SS. Co.	.....	(1).....	Damages to Upper Gates, Lock No. 2.
June 20.	" *Orion*.....	G. S. Thorn.....	.....	(2).....	Damages to Upper Gates of Lock No. 4.
		Total..	.....	56 95	

1-2—Amounts to be collected from steamers *Wahcondah* and *Orion* not given, as the repairs to structures are not all completed, 1st August, 1906.

SOULANGES CANAL.

STATEMENT of Fines and Damages collected during the fiscal year ending June 30, 1906.

Dates.	Name of Vessel.	Name of Owner.	Fines.	Damages.	Remarks.
1905.			$ cts.	$ cts.	
July 18.	Steamer *Ncepawa*....	....	.....	20 00	Coping Lock No. 1.
Sept. 6.	Steamer *A. H. Marshall*.....	Great Lakes & St. L. Trans. Co.....	.....	20 00	" " 3.
Nov. 15.	Steamer *R. Wallace*..	Great Lakes & St. L. Trans. Co..... ...	.....	20 00	" " 1.
Oct. 1.	Barge *Hamilton*	Mont. Transp. Co...	.....	35 00	" " 1.
" 8.	" *Imperial*. ...	Imperial Oil Co.....	....	25 00	Wharf at power house.
Nov. 22.	Steamer *Seguin*.....	Dept. Mar. & Fis....	.....	21 60	Fender, &c., Lock No. 1.
" 28.	" *Aberdeen*....	" "	.....	25 00	Metal box, " 5.
1904.					
Sept. ..	" *Wahcondah.*	New Ontario SS. Co.	.....	200 00	Coping, " 3.
June 6.	" " .	" " .	20 00	....	Running too high speed in canal.
			20 00	366 60	

CHAMBLY CANAL.

STATEMENT of Fines and Damages collected during the fiscal year ending June 30, 1906.

Dates.	Name of Vessel.	Names of Owners.	Fines.	Damages.	Remarks.
			$ cts.	$ cts.	
Nov. 15.	Barge *Bennett*.....	Capt. Goudreau....	.....	12 00	Collides with entrance pier, St. Therese bridge.....
			.....	12 00	

ST. LAWRENCE DISTRICT.

SUPERINTENDING ENGINEER'S OFFICE,
CORNWALL, July 28, 1906.

SIR,—I beg to submit my annual report upon works of construction and survey, in connection with the enlargement of the St. Lawrence canals, for the fiscal year ending June 30, 1906.

RAPIDE PLAT CANAL.

The Morrisburg Power Plant..

A lease was granted on February 23 last, to the corporation of the village of Morrisburg, for the purpose of generating electrical power and transmitting the same for lighting and manufacturing purposes, to the extent of eleven hundred (1,100) horse-power.

In this connection, a contract was entered into between the corporation of Morrisburg and Mr. Wm. Birmingham, contractor, for the construction of sluice ways or supply weir and a power house, the nature of the work being subject to the approval and supervision of the government engineers.

The foundations for this work were commenced on May 11 last, and are still in progress.

The power plant is situated 30 feet east of the extreme west end of the south-west retaining wall of lock No. 23, immediately opposite the village of Morrisburg.

It is expected that the power house will be completed and ready for operation by the end of the year.

GALOPS CANAL.

Iroquois Section.

The contract for this work was awarded to Messrs. Larkin and Sangster. The work was commenced on May 20, 1897, and was completed in November, 1902.

The last progress estimate represents as nearly as possible the full value of the work done, and was sent in on March 31, 1905.

The final plans, diagrams and detail calculations are now being prepared. A considerable amount of work remains to be done, and every effort is being made to have them completed by the end of this year.

Cardinal Section.

For this work a contract was entered into with Messrs. Wm. Davis & Sons, on May 10, 1897.

The entire work on this contract was completed on August 25, 1904, and the final estimate was returned on November 1, 1905.

Wharf at Cardinal.

This wharf is situated in the canal at the west end of the 'Deep Cut' through the village of Cardinal, at the junction of the old and new canals. It is 80 fet long on the new canal side, 150 feet long on the old canal side, and 25 feet wide at the west end. It was built for the accommodation of the village of Cardinal, and will prove a great convenience, as since the new canal was opened for traffic, it has been impossible to land any heavy freight for the village, from boats passing up the canal.

A contract was entered into with Messrs. Quinlan & Robertson, for the construction of this wharf. The work was commenced on May 15, 1906, and has just been completed.

The final estimate is being prepared and will be returned in a few days.

Upper Entrance.

This contract was awarded to Messrs. Murray and Cleveland on November 14, 1888.

The works of construction proceeded with during the past year, are as follows:—

Earth excavation.—Dredging operations were carried on from November 16 to December 13, 1905, when the combing between the widening on the north side and the original north slope of the prism near the upper entrance to canal, was removed. They were resumed on April 4, 1906, the dredge being employed in removing all portions of the bottom of the canal found to be above grade, between the new locks and the entrance to the canal. There remains yet to be done, the removal of some blasted rock along the north toe at the upper entrance, and the cleaning up of the toe of the north slope around McLaughlin's Hill. The sweeping, however, has yet to be done to prove its condition.

Masonry.—The masonry walls on top of cribwork on the south side of lower entrance to lift lock, were completed on November 11, 1905, and the space between walls was filled with broken stone, ready for the concrete top, during the past month.

Protection of slopes.—The work of placing stone protection on face of the banks has been completed, with the exception of the connections with the abutments of culvert to be built at McLaughlin's creek, and a short piece on the north side of the canal below the guard lock connecting with the Cardinal section.

The work yet remaining to be done to complete the contract consists as follows:—

The placing of concrete between the copings of the masonry walls below lift lock, the forming of concrete walks behind the coping of the lift and guard locks, the construction of a masonry culvert at McLaughlin's Creek (the stone for this has been prepared), the building of about 580 lineal feet of a dry masonry wall at water line for the protection of the north bank of the canal at upper entrance, the trimming and sodding of bank and slopes on the north side of canal, west of McLaughlin's Creek, the completion of stone protection to banks as previously mentioned, the placing of heavy blocks of stone for the protection of the ice-breaker on the upper entrance pier, and the final cleaning up of the prism of the canal where found necessary.

The contractors feel confident that they will complete their entire contract before the close of the season.

NORTH CHANNEL.

The contract for this work was awarded to Mr. M. A. Cleveland and was commenced on May 14th, 1897.

The work of construction performed during the past year, is as follows:—

Earth Excavation.—Concisting of dredging prism at head of Spencer's Island and on outer shoal south side of channel, and in cleaning up slope on south side at Drummond Island, continued from July 1 to November 16, 1905. For the balance of the season, the dredging plant was employed at the Upper Entrance of the Galops canal.

Protection Wall.—During the month of July, 1905, that portion of the slope on the south side of the channel from the angle at the head of Drummond Island to the nosing, was graded and the curb stones laid, practically completing the work, leaving only a short piece, where it is intended to construct a small dock, about fifty (50) feet long.

Cribwork.—During the months of July and August, 1905, twenty-nine cribs were built and sunk in place, and practically ballasted.

Concrete Coping.—From September 5 to November 7, 1905, with the aid of a concrete mixer of modern design, 10,900 lineal feet of coping was laid on either side of the channel at Drummond island, completing that part of this particular work, with the exception of a short piece where the above mentioned dock is proposed to be built on the south side of the channel.

Stone Filling.—The stone filling in rear of the coping was carried on at intervals during the season, and after the concrete coping was completed, stone was placed in rear of it and blinded with gravel. Throughout the extent of the ice-breaker pier from the head of Spencer's island to the lighthouse pier, stone and gravel was distributed for filling in rear of the wall to be built on top of the pier.

Masonry.—During the month of November, 1905, a stringer of British Columbia pine was placed on top of the ice-breaker pier at the head of Spencer's island, and the placing of the footing course of the projected wall was carried on to the end of the season, 400 lineal feet of it being laid.

Owing to prevailing high water during the early part of this season, a considerable delay was encountered in the progress of the work. However the contractor has every hope of completing his contract by the end of this season and is making every effort in that direction.

'GUT DAM.'

Owing to the prevailing high water this work has also been delayed.

Cribwork.—During the month of November, 1905, for the protection of the superstructure of the dam, against the action of the ice, two additional cribs were sunk in place, ballasted and protected with a rock talus.

The remaining part of the work to be done, consists in finishing the top of the dam with concrete, a small portion of the talus with stone and indurated clay on the upper side of the dam, and some stone filling on the lower side. This work will be entirely completed in the early part of this season.

REMOVING SHOALS BELOW LOCK NO. 28, IN THE RIVER ST. LAWRENCE.

For this work a supplemental contract was prepared, to be entered into with Mr. M. A. Cleveland, on April 6, last, the location of these shoals being immediately abreast of his contract at the upper entrance of the Galops canal.

After carefully examining the nature of the work and having to contend with a rapid current of 4½ miles per hour, Mr. Cleveland discovered that his dredge was not suitably equipped for the undertaking, and wrote to me the following letter, viz.:—

'PRESCOTT, ONT., May 3, 1906.

'L. N. RHEAUME,
'Engineer in Charge, Cornwall, Ont.

'DEAR SIR,—When I learned that it was found necessary to remove the shoals in the river east of lock 28, it appeared that it might be done in connection with upper entrance Galops canal work, but on examining the locality, I find that my dredging equipment is not suited for the work, owing to the strong current and the necessity of moving off the work to avoid collisions with unmanageable tows when passing. If procuring a special dredge for the work causes the department any inconvenience, I regret very much that I am not in a position to do the work.

'Yours truly,

(Sgd.) 'M. A. CLEVELAND.'

The department being strongly urged by the marine insurance companies to remove these shoals without further delay on account of their being a danger to navigation, immediate steps had to be taken to find a suitable dredge to do the work.

On May 8, last, with the kind permission of the chief engineer of the Department of Public Works, I succeeded in procuring Mr. W. J. Poupore's powerful dredge *King Edward,* which at the time was working at Maisonneuve.

An agreement was immediately entered upon with Mr. Poupore. The work was commenced on May 15, and completed on June 4, last.

The shoals were removed to a depth of 2 feet below the lower mitre-sill of lock 28 of the Galops canal, and the final estimate was returned on June 12 last.

GALOPS RAPID IMPROVEMENT.

This work has been under contract with the Gilbert Bros. Engineering Company, Limited, since September 25, 1897.

During the past season the work performed is as follows:—

Island shoal dredging.—The work of lowering the grade on Island shoal was completed, so far as shown by soundings, on July 27, 1905.

Though the total area of this shoal was but 101,600 square feet, the area covered by the dredging operations was about 219,000 square feet.

Final soundings show the bottom to be below the required grade over the whole of the area covered by the dredging operations.

Obstruction in 9-foot channel.—Beacons ranging to the obstruction in the 9-foot channel mentioned in last year's report, as well as a sign board advising vesselmen of the purpose of these beacons were placed on July 13, 1905, by the Department of Marine and Fisheries.

Lower bar dredging.—From July 27, 1905, to the 31st of the same month was taken up in removing the dredge plant to lower bar, where the work of removing a high spot above the original contract grade line was commenced upon the latter date. This was done at the expense of the contractor, as per contract.

The work of widening on the north side of the existing channel through lower bar was commenced on August 2, and continued until November 25, when work was suspended for the season.

It was found necessary to excavate a trench on the north side of the cut through lower bar in order to allow the rapid water to spill in that direction.

On October 17 the material in bank ahead of the dredge extended to a point 64 feet within the existing 200-foot channel.

The work of widening on the north side of the existing channel through lower bar was resumed on April 24, 1906, and diligently carried on until June 22, when the dredge had covered the whole area showing cutting on plan. From June 22 to 30 the dredge was engaged in removing the bank of loose rock which had accumulated ahead of her cut.

On June 30 there remained but a few days' work to complete the removal of this bank.

Though the total area of this widening was but about 24,300 square feet, the area covered by dredging operations was approximately 109,000 square feet.

Final soundings show the bottom to be below the required grade over that portion of the area covered by dredging operations west of Sta. 0 + 40 of lower bar extension.

After the bank is removed and final soundings obtained over the whole of the area covered by dredging operations, a profile of the water surface on the centre line of

this channel will be taken, and the whole channel will be swept to ascertain if any material remains above the required grade line.

This contract will be completed before the end of this season.

I am, sir, your obedient servant,

L. N. RHEAUME,
Engineer in charge.

M. J. Butler, Esq.,
Deputy Minister and Chief Engineer,
Department of Railways and Canals,
Ottawa, Ont.

ST. LAWRENCE CANALS.

Office of the Superintendent,
Cornwall, June 30, 1906.

Sir,—I have the honour to report on the maintenance and operation of the canals in the St. Lawrence district for the year ending June 30, 1906.

Within this district are located the Cornwall, the Williamsburg and the Murray, respectively overcoming the Long Sault, and the Farran's Point, Rapide Plat and Galops rapids, and affording direct communication between Lake Ontario and the Bay of Quinte at its west end—canals 28 miles in length within a district 175 miles long.

THE CORNWALL CANAL.

Was closed to navigation December 7, 1905, and reopened April 17, 1906.

During the season navigation was conducted without interruption and without serious accident—a circumstance largely due to the careful work of the operating staff, and the use of electric winches for hauling vessels through the locks. By the use of these winches vessels are compelled to enter the lock more cautiously than many of them are otherwise inclined to enter.

At the beginning of this season the lighthouse on the outer pier at the upper entrance was transferred from the Marine Department to the Canals Department, and a red electric installed to replace the white oil light.

A full new floor was put on the Cornwall bridge; and the planking on the Mille Roches weir bridge renewed. The glance boom at lock 21 was rebuilt, and an entirely new one built for lock 19.

During the winter new under and top gate-bridges were put on the new locks, as follows: Lock 20, 4; lock 19, 4; lock 18, 2; lock 17, 2, and lock 15, 1.

The telephone line was repaired by putting in 100 new poles. Further work of a similar nature is needed to make the line good.

Locks 19 and 21 and the north bank at Cornwall are provided with iron snubbing posts set in a block of concrete, of which 51 were put in this year.

New watch-houses were built for old locks 15, 16 and 17. Both old and new locks are maintained in good condition, and used as the traffic requires.

All the back ditches were cleaned, and the banks trimmed and kept free from noxious weeds.

During the two weeks that the water was out of the lower reaches of the canal all the usual under-water work was attended to, and new chain-rollers put in all the wells at lock 18.

The superstructures of the three wooden piers and the wing wall extension at lock 21 were taken down to well below low water mark, and rebuilt of concrete.

One of the transformer houses at lock 18 was burned, and is being rebuilt of iron and concrete. This material will be used hereafter for all such purposes, so that the structures may be proof against destruction by an accident to the electric wires.

The basin between old locks 16 and 17 has been used for some years as a 'dry dock,' and this year rather extensively. With very slight alterations and improvements it could easily be rendered sufficient for all the uses for which a dock at this point on the river is likely to be required.

Mr. J. C. Johnstone has completed his contract for repairing the north bank of the canal, west of old lock 17.

Mr. W. M. Leacy is almost through with his work of riprap and levelling, near the foot of the canal and around the shops, having made exceptionally good progress.

On the south bank, too, between Cornwall bridge and Lock 17 by-wash the bank has been protected with a better class of stone, levelled up to grade and trimmed into shape, and some clumps of shrubs planted just south of the bridge.

John Chisholm, labourer at Lock 20, was superannuated on June 30, 1906.

The old wooden gate-lifter at Cornwall is completely gone. A new steel gate-lifter has just been completed for Williamsburg canals ; but in the meantime it is considered the best policy to hold it at Cornwall—the foot of the canals of the district. The distance from Cornwall, the foot, to Cardinal, the head, is too great to have to bring a gate-lifter in case of accident. It is imperative that another machine should be built for the Cornwall canal, and this one returned to Morrisburg, for which point it was originally intended.

THE WILLIAMSBURG CANALS,

comprising Farran's Point, Rapide Plat and Galops, were closed to navigation on December 7, 1905, and opened again on April 17, 1906—a period of only 130 days during which the canals were closed.

These canals, too, were operated during the whole season of navigation without interruption.

At many spots on each canal the rip-rap was extensively patched—the bottom of a long stretch of about 600 feet on the Rapide Plat canal having been put in while the canal was unwatered in the spring.

All the back ditches have been kept clean.

Both old and new locks are maintained in good condition, and used as the traffic requires.

New locks 23 and 24 are now supplied with iron snubbing posts set in concrete blocks, of which 14 were built this year.

A fire-proof store-house of iron and concrete was built for oils and paints.

A slight explosion in the gas station at Farran's Point, after the season had closed and while the plant was being laid up for the winter, caused damage to the holder, and the roof of the building, which were repaired in good time for the opening of navigation in the spring.

Further repairs were made to the north pier at the lower entrance, Farran's Point, and a new oak waling put on the south side of the south pier, which is the north pier for the old lock.

Mr. John O'Leary's contract for repairs to the south bank of the Galops canal is progressing favourably. The outer bank is built up satisfactorily and work has been well begun on taking out the old cribs in the inner bank. The contract should be completed this season.

The contract with the Edwardsburg Strach Company for operating the Cardinal bridge by electric power has not yet been put into effect, owing to the fact that it has been impossible to get a motor to satisfactorily connect up with their high frequency generator. They propose putting in another equipment shortly, and it was not thought

advisable to order a special motor to take power off their present generator when it might possibly be of use for a few months only ; but rather to wait until their newer installation is complete, and then purchase a standard machine that can be used for its full life.

Mr. John Black was superannuated September 30, 1905. Mr. Emile Cutler and Mr. John Black were granted imperial service medals.

THE MURRAY CANAL

was closed to navigation on December 6, 1905, and opened again on April 14, 1906.

During the season it was operated without interruption and without serious damage. In fact, the only damage to any of the canal structures was the partial burning of the face of several of the piers on the north side of the eastern entrance, at the time of the steamer *Melbourne* was burned while tied up there, in September, 1905.

All the bridges, bridge-houses and store-houses were painted. The back ditches were kept clean, and were extended until now they are in good condition and sufficient to carry off all the surface water.

A complete new floor was put on the Brighton road bridge.

On April 30 last, the position of overseer was abolished. Since that time the work of the canal has been carried on quite satisfactorily without such an officer.

Appended are statements of water levels, fines and damages, lockages, and vessels in dry dock.

I have the honour to be, sir, your obedient servant,

W. A. STEWART,
Superintendent.

M. J. Butler, Esq.,
Deputy Minister and Chief Engineer,
Department of Railways and Canals,
Ottawa, Ont.

RECORD of Highest and Lowest Levels of Water on the St. Lawrence Canals, during the year ending June 30, 1906.

Month.	Lock 15.		Lock 21.		Lock 22.		Lock 23.		Lock 24.		Lock 25.		Lock 27.		Lock 28.		Murray.	
	High.	Low.	High.	Low.	High	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.
1905.	Ft.	Ft.	Ft.	Ft.	Ft.	Ft.	Ft.	Ft.	Ft.	Ft.	Ft.	Ft.	Ft.	Ft.	Ft.	Ft.	Ft.	Ft.
July	16.8	16.2	16.9	16.3	18.9	18.0	18.7	18.1	18.4	17.6	21.7	21.1	17.9	16.6	18.4	17.6	14.4	14.0
August	16.4	16.0	16.9	16.0	18.9	17.9	18.7	17.9	18.3	17.4	21.5	20.4	17 2	16.4	18.2	17.1	14.5	14.2
September	16.4	15.8	16.8	16.3	18.8	18 2	18.5	18.0	18.0	17.4	21.3	20.5	17.0	16.5	18.0	17.4	14.3	13.9
October	16.1	15.6	16.9	15.9	18.8	17.7	18.4	17.4	18.0	16 9	21.0	20.0	17.6	16.1	19.5	16 8	14.0	12.0
November	16.0	15.1	16.7	15.0	18.7	17.2	18.4	16.8	17.5	15.8	21.1	19.0	17.0	15.3	17.8	15.7	13.9	13.0
December	15.9	15.2	16.3	15.3	18.2	16.9	18.8	16.4	18.5	15.8	25.9	18.4	17.6	15.0	18.5	15.5	13.4	13.0
1906.																		
January	17.3	15.5	16.6	15.4	18.5	17.0	18.4	17.2	18.0	16.5	21.1	19.2	17.2	15.4	18.0	16.0	13.6	13.2
February	23.3	15.8	17.5	14.9	19.2	17.3	18.8	17.0	17.6	15.8	20.7	18.7	16.6	15.4	17.5	15.9	13.6	13.2
March	25.7	16.0	15.9	15.2	18.0	17.2	17.9	16.8	17.5	16.0	20.1	18.8	16.3	15.5	17.1	15.9	13.4	13.0
April	16.1	15.5	16.2	15.7	18.0	17.5	17.9	17.1	17.5	16.3	20.7	19.3	16.5	15.9	17.4	16.5	13.7	13.1
May	16.0	15.5	16.4	15.7	18.8	17.4	18.0	17.0	17.0	16.5	20.8	19.2	16.7	15.5	17.6	16 3	13.7	13.3
June	16.1	15.6	16.3	15.8	18.1	17.7	18.1	17.6	17.8	17.0	20.7	20.2	16.9	18.3	17.7	18.9	14.4	19.5

STATEMENTS of Fines and Damages, in connection with the St. Lawrence canals, during the year ending June 30, 1906.

WILLIAMSBURG CANALS.

Lock.	Date.	Name of Vessel.	Damage.	Fine.	Owner.	Remarks.
	1906.		$ cts.	$ cts.		
23	May 17...	Thrush.....	37 15	....	Canadian Towage & Trans. Co.	Paid.

STATEMENT of Lockages, St. Lawrence Canals, for year of 1905.

Canal.	Number of Lockages.	Number of Vessels.
Cornwall	2,705	3,502
Farran's Point	863	1,116
Rapide Plat	1,039	1,340
Galops	1,152	1,422
Lift Lock	1,847	2,303

STATEMENT of Vessels in Dry Dock, Cornwall, during the year ending June 30, 1906.

No.	Name.	Owner.	Residence.	Date. Entry.	Date. Removal.
				1905.	1905.
1	Walker	W. Daley	Montreal	July 4..	July 5
2	Scow	Cohen & Son	"	" 13.	" 19
3	"	J. T. Davis	"	Aug. 2..	Aug. 8
4	"	"	"	" 2..	" 16
5	Bonita	Cohen & Son	"	" 8..	" 24
6	Emile	J. O'Leary	Ottawa	" 20..	" 20
7	Mabel C	L. Degan	Cornwall	" 24..	" 25
8	Poupore	Cohen & Son	Montreal	" 29..	Sept. 1
9	Grenada	A. Smallman	Cornwall	Sept. 6..	" 8
10	Emile	J. O'Leary	Ottawa	" 16..	" 21
11	Beaver	J. Bonar	Cornwall	" 18.	" 18
12	Mary Ellen	J. Jesmer & Son	"	Nov. 10..	Nov. 13
					1906.
13	Central City	Cohen & Son	Montreal	Dec. 1..	May 1
14	Concrete Scow	Dept. R. & C.	Cornwall	" 1..	" 1
15	House Boat	"	"	" 1..	Apr. 19
16	Gate Lifter	"	"	" 2..	" 19
17	"	"	"	" 2..	
18	Dredge 4	Cohen & Son	Montreal	" 7..	May 8
19	Scow	Dept. R & C.	Cornwall	" 7..	" 3
20	"	"	"	" 7..	" 3
21	Alert	"	"	" 7..	Apr. 19
22	Honore	Quinlan & Robertson	Belleville	" 7..	" 19
23	Maggie King	" "	"	" 7..	" 19
24	P. D. Day	Cohen & Son	Montreal	" 7..	May 1
25	Scow	"	"	" 7..	Apr. 19
26	"	"	"	" 7..	" 19
27	"	"	"	" 7..	May 12
28	"	"	"	" 7..	" 12
29	Garnet	Cornwall & Montreal Nav. Co	Cornwall	" 7..	" 1
30	Sand King	H. F. Cummings	"	Dec. 7..	" 3
31	Gracie	R. Smith	"	" 7..	Apr. 19
32	Mabel C	L. Degan	"	" 7..	May 25
				1906.	
33	St. Lawrence	McAuliffe & Manley	Welland	May 12..	May 15
34	Scow	" "	"	" 12..	" 15
35	"	Cohen & Son	Montreal	" 22..	
36	H. G. Larkin	W. J. Poupore	"	" 23..	" 25
37	Scow	"	"	" 23..	" 25
38	Sand Pump	H. F. Cummings	Cornwall	" 25..	" 26
39	Scow	"	"	June 14..	June 14
40	Chaffee	E. Robideau	Lancaster	" 18.	" 19

WELLAND CANAL.

SUPERINTENDING ENGINEER'S OFFICE,
ST. CATHARINES, June 30, 1906.

SIR,—I have the honour to report upon the maintenance and operation of the Welland canal and its branches for the fiscal year ending June 30, 1906.

The canal was closed for navigation on December 16, 1905, but the steamer *Neepawah* was allowed to pass down on December 23.

The canal was opened for navigation on April 16, 1906.

Navigation was not interrupted during the year, no accident of any moment having occurred.

On October 15, 1905, the steamer *Henry R. James*, bound down, ran into the upper rest pier of the Niagara Street bridge, damaging the pier and throwing the bridge off its pivot. The bridge, which was open at the time, could not be used for street traffic for about six weeks while repairs were being made. The cost of making the repairs amounting to $1,688.33, was paid by the steamer.

IMPROVEMENTS TO CANAL.

During the year Messrs. Hogan & Macdonell completed their contract for 'deepening the rock cut between Port Colborne and Humberstone.'

Messrs. Magann & Phin continued work under their contract for 'deepening certain portions of the Summit Level,' and this level is now deepened througout its whole length. The sharp curve at Ramey's Bend has been eased off considerably, and also the one at Port Robinson. Both of these were very difficult to navigate, but cause no trouble.

Mr. Joseph Battle completed his contract for placing 'stone protection' on certain portions of the banks on the Summit level.

The pile protection to the face of the banks below Thorold, mentioned in my last report, has been continued under the ordinary 'repairs' appropriation with success.

The installation of the electric lighting and power plant progressed so far as to allow us to light the canal from Port Dalhousie to Thorold in October, 1905, and to Welland before the close of navigation. The lighting is now in full operation the full length of the canal, and gives great satisfaction to all navigators.

Experiments have been made upon a gate-opening device, which I designed last year, and it has proved very satisfactory. The machines should all be installed during the coming winter.

PORT COLBORNE IMPROVEMENTS.

Messrs. Hogan and Macdonell have made some progress with the excavation in the new harbour.

Mr. M. J. Hogan, under his contract for 'new docking along west pier,' has made very good progress, nearly all of the cribs being now in place and a considerable portion of the concrete superstructure.

The foundations for the proposed elevator on dock No. 2, under contract to Messrs. Larkin and Sangster, has been completed, and most of the filling around the foundation piers has been put in place by Messrs. Hogan and Macdonell.

OLD CANAL.

The water was drawn off the old canal for ten days this spring to allow for repairs to weir and lock foundations, some of which were in dangerous condition. An examination of the permanent repair work which was done to some of the foundations three and four years ago shows it to be in excellent condition.

GENERAL.

The canal staff suffered a severe loss in October last when Mr. Edward J. Odlum, for over thirty years assistant engineer on the canal, was suddenly called away.

The following employees have been superannuated during the year: James Bradley, Michael White, and A. H. Upper, together with J. M. Woodall, who paid into the retirement fund.

Patrick Fahey, a superannuated employee, died on August 10, 1905.

James Howe, another superannuated employee, died on May 17, 1906.

Attached is a statement of moneys collected for damages caused to canal property by different vessels, also a statement showing the highest and lowest recorded depths of water on the mitre sills of the locks at Port Dalhousie and Port Colborne for each month of the year.

The water in Lakes Erie and Ontario has kept well above normal during most of the year, and vessels have had no trouble on account of low water.

I have the honour to be, sir,
Your obedient servant,

(Sgd.) J. L. WELLER,
Superintending Engineer.

M. J. BUTLER, Esq.,
Deputy Minister and Chief Engineer,
Department of Railways and Canals,
Ottawa, Ont.

WELLAND CANAL.

STATEMENT of Damages to Welland Canal property during the fiscal year ending June 30, 1906, and the amount paid on account of said damages.

Date of Damage.	Name of Vessel.	Amount of Damage.	Amount Paid.	Date Paid.	Where Paid.
1905.		$ cts.	$ cts.	1905.	
Sept. 21..	Barge, *Isabelle Reid*.	25 00	25 00	Sept. 21....	Port Dalhousie.
" 29..	" *Ceylon*.	83 88	83 88	Nov. 16....	" Colborne.
Oct. 15..	Steamer, *Henry R. James*.	1,688 33	1,688 33	Oct. 17....	" Dalhousie.
1906.				1906.	
April 24..	" *A. M. Marshall*	14 49	Nil.		
May 7..	" *A. D. Davidson*	8 13	8 13	June 11....	" "
" 11..	" *A. M. Marshall*..	17 50	Nil.		
" 11..	" *Donacona*..	14 07	Nil.		
" 17..	" *J. S. Keefe*.	6 31	6 31	" 20....	" "
" 19.	" *John Lambert*..	12 74	12 74	" 18...	" "

STATEMENT showing the highest and lowest depths of water on the Lower Mitre Sill, Lock No. 1, New Welland Canal, Port Dalhousie, for the fiscal year ending June 30, 1906.

Months.	Lower Sill.				Months.	Lower Sill.			
	Highest.		Lowest.			Highest.		Lowest.	
1905.	Ft.	In.	Ft.	In.	1906.	Ft.	In	Ft.	In.
July.	17	0	16	10	January	16	5	15	8
August	17	2	16	10	February.	16	3	15	10
September.	17	0	16	5	March.	16	1	15	9
October.	16	7	16	1	April	16	4	15	9
November.	16	3	15	9	May.	16	5	16	1
December.	16	1	15	7	June.	16	8	16	2

STATEMENT showing the highest and lowest depths of water on the Upper Mitre Sill, Lock No. 27, New Welland Canal, Port Colborne, for the fiscal year ending June 30, 1906.

Months.	Upper Sill.				Months.	Upper Sill.			
	Highest.		Lowest.			Highest.		Lowest.	
1905.	Ft.	In.	Ft.	In.	1906.	Ft.	In.	Ft.	In.
July.	16	1	15	2	January	16	9	13	2
August	16	1	14	5	February	15	4	13	8
September.	15	8	14	6	March	15	3	12	7
October.	15	5	13	11	April	14	8	13	11
November.	17	0	13	8	May..	15	3	13	8
December.	16	1	13	1	June.	15	8	14	6

ENGINEER'S OFFICE,
SAULT STE. MARIE, ONT., June 30, 1906.

SIR,—I beg leave to submit my annual report upon the improvements in progress of construction to the entrances of the Sault Ste. Marie canal.

DREDGING UPPER ENTRANCE.

A contract for a section of the work from the east end of the entrance piers extending westerly one and one-tenth miles, was let to Mr. C. S. Boone, May 3, 1905, and embraces the deepening and widening in the vicinity of the entrance piers, the deepening between the piers, the deepening and widening of the shoals close to the canal beacon, and the removal of all boulders to a depth of 21 feet 5 inches below extreme low water mark, lying within the limits laid down for the deepening and widening of the channel-way. Only fair progress has been made with this work, due probably to the loss of time sustained by the contractor by having the dredges and drills damaged on several occasions by being struck by vessels using the channel, and from having to remove from the work upon discovering a passing boat has become unmanageable. The contractor has engaged two dredges and a drill, which is ample for the work, and should complete the same this season. The completion of this work will greatly improve the possibilities of a large tonnage passing through the locks, as, from its location, it obstructs navigation more than at any other point where dredging is required.

A contract is about to be entered into for the deepening and widening of the remaining section as outlined on the plan approved for the improvement to the upper channel. This section is known as the Vidal shoal, and is situated about 2 miles above the locks. On the completion of this work, a channel-way 500 feet in width, with a depth at extreme low water mark of 21 feet 5 inches, will have been secured. This will provide safer and better facilities for the ever-increasing traffic of the canal.

EXTENSION TO THE SOUTH PIER—UPPER ENTRANCE.

A contract for building an extension to the south pier at the upper entrance was entered into November 25, 1904, with O'Boyle Bros. The contract embraces the construction of a substructure of cribwork to extreme low water mark, and a concrete rear and front wall with a stone core, to the same level as the old pier in existence, or 7 feet 9 inches above extreme low water as determined at the time of the construction of the canal. The length of the new extension is to be 800 feet, and the width 24 feet on top. The work of construction on this contract was started upon the opening of navigation, 1905, when the first shipment of timber was received, and the last crib for the substructure was sunk September 18, 1905. The work of building the concrete walls for the superstructure was started September 12, but, owing to the unfavourable weather and the unsatisfactory working of the mixing plant, also the failure of the Cement Company to deliver cement on the works when required, the contractor was unable to complete his work in the specified time. Upon an application, he secured an extension to July 31, 1906, which should give him ample time to complete his work.

During the progress of construction of the extension to the south pier, the south side of the channel, after being deepened, was opened out to navigation in order to permit the north half being deepened and widened. This made the construction work on the new extension much more difficult, and resulted in damage being done to the contractor's work from the boats using the canal. The swells and suction from passing boats in the limited channel open for navigation, also interfered with his work. It is the intention to back up the pier with a rock bank, and I would recommend that this work be done by a dredge. Material being taken from the channel is now being dumped as close to the pier as possible, and from which a rock bank could be provided. This work will strengthen the substructure which is of cribwork and stands 22 feet in height, and for the greater part of its length only 25 feet in width. The strong cross-

current which sets across the end of the new extension has, to an extent, been diminished from what was found at the end of the old pier, still is strong enough to drive the boats under certain conditions against the pier with considerable force.

It was found necessary, in bonding with the old pier, to remove a 30-foot crib and build a new one in its place. The crib having been removed, the building of the new one is now in course of construction.

IMPROVEMENTS AT THE LOWER ENTRANCE.

During the season of 1905, the new extension to the south pier at the lower entrance of canal was brought to completion, and I take pleasure in reporting the completion of a very satisfactory piece of work which does credit to the contractor, Mr. Wm. Birmingham. This pier would be greatly strengthened and better able to resist the pressure brought against it when being used by the large freighters of from four to five thousand tons burthen, with cargo of from seven to ten thousand tons, if it were banked at the rear to the level of the top of the substructure, which work can be done at a small cost when a contract is entered into for the proposed widening or taking out of the elbow or curve from the end of the new pier extension to deep water to a line parallel to the centre ranges now in use. The material excavated from this source being dumped behind the new pier would provide the additional protection.

I have the honour to be, sir,
Your obedient servant,

F. B. FRIPP,
Engineer in Charge.

M. J. Butler, Esq., C.E.,
Deputy Minister and Chief Engineer,
Ottawa.

SAULT STE. MARIE CANAL.

Superintendent's Office,
July 2, 1906.

Sir,—I submit herewith the annual report on the operation and maintenance of this canal for the fiscal year ending June 30, 1906.

The canal was closed for the season on the 20th day of December, having been in operation for 255 days, and was reopened for traffic on April 14, being four days later than last season.

During the fiscal year just closed there were made 4,100 lockages, passing through 5,185 registered craft and 475 unregistered vessels and rafts and scows, with a total tonnage of 5,059,251 tons, with an average time of 15·335 minutes to each lockage. This was a decrease of 819,208 tons as compared with that of the last fiscal year. Of the total tonnage there was 1,870,486 tons of Canadian tonnage as compared with a tonnage of 1,753,146 last year, being an increase of 117,340 tons in this class.

The real cause of the decrease shown in the tonnage is the noncompletion of the dredging operations in the upper channel by the contractors who have the work in hand, as captains are afraid of their vessels taking a shear and doing damage to the dredges or scows used in connection with them. In addition there was also a contractor putting in an extension to the south pier, so that vesselmen had but a narrow

channel at best, and beset by likely damage suits on both sides of him as a fence to come down through, and as contractors' employees are not at any time too well pleased to put themselves out to help along those employed in navigation.

The extension of the south pier at the upper entrance is about completed, and captains have expressed themselves as pleased at its being done, and that it is having the desired effect of cutting off a great deal of the cross current that formerly was a menace to those using the canal. During its building some of the vessels have struck it, and although not doing much damage to the pier it has saved quite a number from going down on to side of the channel and knocking holes in their sides, as was done on several occasions in former years at the place where this pier is being built, and it was for this purpose that it was built as well as to give us more room for landing vessels at and tying them up at.

As in former years, the daily exchange of vessel reports has been carried on with the American canal, thus keeping intact the ever increasing volume of the Lake Superior traffic. We are as usual indebted to Mr. Joseph Ripley, general superintendent of the American canal, for many courtesies shown to us.

The following tables gives the traffic passing through the two canals at this point during the season of navigation for the years mentioned:—

Year.	Number of Vessels passed.	Registered Tonnage of Vessels.	Total Freight Tonnage.	Cost of Carrying per mile. Ton.	Estimated Value of Freight carried.	Percentage of Freight carried in Canadian Vessels.	Number of Passengers.
1855	193	106,296	14,503	.....	.....	.....	4,270
1860	916	403,657	153,721	.....	.....	.....	9,230
1865	997	409,062	181,638	.....	.....	.....	19,777
1870	1,828	690,826	539,883	.....	.....	.....	17,153
1875	2,023	1,259,534	833,465	.....	.....	.....	19,685
1880	3,503	1,734,890	1,321,906	.....	.....	.....	25,766
1885	5,380	3,035,987	3,256,628	.....	.....	.....	36,147
1890	10,557	8,454,435	9,041,213	1.3	102,214,948	3.5	24,856
1891	10,191	8,400,685	8,888,759	1.35	128,178,208	4.0	26,190
1892	12,580	10,647,203	11,214,333	1.31	135,117,267	3.8	25,896
1893	12,008	8,949,754	10,796,572	1.1	145,436,957	4.1	18,869
1894	14,491	13,110,366	13,195,860	.99	143,114,503	3.5	27,236
1895	17,956	16,806,781	15,062,580	1.14	159,575,129	3.75	31,656
1896	18,615	17,249,418	16,239,071	1.	195,146,842	3.	37,066
1897	17,171	17,619,923	18,982,755	.83	218,235,927	3.	40,213
1898	17,761	18,622,764	21,234,634	.79	233,069,739	2.2	43,426
1899	20,255	21,958,347	25,255,810	1.5	281,364,750	3.1	49,082
1900	19,452	22,315,834	25,643,073	1.18	267,011,959	3.	58,555
1901	20,041	24,626,976	28,403,065	.99	289,906,865	4.	59,663
1902	22,659	31,955,582	35,961,146	.89	358,306,300	4.	59,377
1903	18,596	27,736,444	34,674,437	.92	349,405,014	6	55,175
1904	16,120	24,364,138	31,546,106	.81	334,502,686	6.	37,695
1905	21,679	36,617,699	44,270,680	.85	416,965,484	5.	54,204

During the season of navigation of 1905 the traffic through this canal was 12 per cent of the total freight, 15 per cent of the total registered tonnage, and 48 per cent of the passengers carried, the amounts being, 5,468,490 tons of freight, 5,496,466 registered tons and 25,803 passengers. Compared with the season of 1904, there was an increase of 440,300 tons of freight, or 9 per cent; 1,292,370 registered tons, or 31 per cent, and 9,714 passengers, or 60 per cent.

The small labour crew kept on hand at general work have been engaged in levelling up the grounds at odd times, and have made a great improvement in the appearance of the grounds, and with a somewhat larger crew at the work continuously a decided improvement would be made.

The buildings have been kept in good repair, and are well painted.

The machinery has been carefully gone over, and its efficiency has been maintained. A new direct current arc dynamo was purchased and installed this spring, and now that it has got into thorough working order is giving good satisfaction.

The tops of the several piers will have to be recovered, now that the different contractors are about done using them for piling material and repairs.

Very little damage has been done to the piers by vessels using the canal, and none to the gates.

Several vessels have gone aground outside of the stakes marking the outside of the narrow part of the upper channel that has been reserved for the use of navigation, and some of them have done considerable damage to themselves on account of striking the berm left by the dredges of the contractors.

I would again call the attention to the want of cement walks along the side of the lock, and also to the want of the lockmen's shelter house.

The day of big boats has come, and there are now several building that have too much beam for passing through this lock, being 60 feet in width. The other day we locked through the Steamer *J. Pierpont Morgan,* being 600 feet in length and with 58 feet beam. We did this without any difficulty; this vessel was built by the steel trust, and was built with several others to fill the capacity of this lock, and not to be at the mercy of the American lock as to size in case of accident to that lock. In that case any of the 60-foot beam vessels caught above in Lake Superior would have to lie above the lock until the repairs were made before they could get through the locks, as they would be too wide to come down through this lock. The question of a new and wider lock must soon be taken up by this department, and as called to your attention last winter some land lying between the present canal reserve and the rapids should be procured from the Crown Lands of Ontario before they are taken up by some private corporation so as to enable a new lock to be built, and by so doing obviate the trouble that the American government are now having across the river in obtaining lands required for their new lock, it having been taken up and built upon by private parties.

I have the honour to be, sir,
Your obedient servant,

J. C. BOYD,
Superintendent.

M. J. Butler, Esq., C.E.,
Deputy Minister and Chief Engineer,
Ottawa.

Peterboro, July 19, 1906.

M. J. Butler, Esq.,
Deputy Minister and Chief Engineer,
Department of Railways and Canals,
Ottawa, Ont.

Sir,—I have the honour to submit my annual report for the fiscal year ended June 30, 1906, covering the works of construction on the canal.

I assumed the duties of superintending engineer on the Trent canal on April 1, 1906, having been appointed to that office on the resignation of Mr. R. B. Rogers, who had previously filled it.

The works at present under construction are the completion of hydraulic lock No. 2, and sections Nos. 2 and 3 of the Simcoe-Balsam Lake division.

Hydraulic Lock No. 2.—The contract for the steel work of this lock, near Kirkfield, on section No. 2, was awarded to the Dominion Bridge Company, Montreal, on February 15, 1905. Nearly all the steel has been manufactured and delivered on the

ground, and at the end of last month about 80 per cent of it was erected. It is confidently expected that the lock will be completed and ready for testing early in October.

Section No. 2.—The contract for this section was awarded to Messrs. Larkin and Sangster on September 7, 1900, and on July 11, 1904, a supplementary agreement was made covering the construction of the high level bridge and approaches, across the canal at the fourth concession road, township of Eldon. The work under the main contract is finished, except some fencing. The construction of the 4th Concession road bridge and approaches will be finished about October.

Section No. 3.—The contract for this section was awarded Messrs. Brown and Aylmer on September 6, 1900. All the concrete work connected with the construction of the five locks, three dams, three swing bridges, entrance piers, &c., is completed. The formation of the canal prism and embankments is well advanced, and good progress has been made this season laying stone protection and sodding on the banks. There is yet some excavation to be done at Portage Road bridge, and between lock No. 5, and deep water in Lake Simcoe, but it is fully expected that the whole of the works embraced in this contract will be fully and satisfactorily completed early this fall.

Improvements to Holland river.—A contract for the improvements of the Holland river, between Cook's bay and Holland Landing has been awarded to the Lake Simcoe Dredging Company, who are now building scows, &c., preparatory to the execution of the works under their contract.

Rosedale lock.—A survey of this locality has just been begun, with the object of preparing plans for a new lock and dam to replace the old wooden structures taken over at this place last year from the Ontario government. The present dilapidated wooden lock is smaller than the other locks connecting the chain of lakes between Simcoe and Rice lakes, which main division of the canal is on the eve of completion. For which reasons I think the Rosedale lock should be replaced at a very early date by a new one of standard dimensions.

I am, sir,

Your obedient servant,

(Sgd.) ALEX. J. GRANT,
Superintending Engineer.

RIDEAU CANAL.

SUPERINTENDING ENGINEER'S OFFICE,
OTTAWA, July 1, 1906.

SIR,—I have the honour to submit herewith my Annual Report on the Rideau canal under my charge, for the fiscal year ending June 30, 1906.

Navigation closed at Ottawa, November 29, 1905.
Navigation closed at Kingston Mills, November 20, 1905.
Navigation opened at Ottawa, April 28, 1906.
Navigation opened at Kingston Mills, April 30, 1906.

I regret to have to report that navigation was interrupted at Washburn Lock, owing to the lifting of the lower mitre sill, for a period of 12 days, from June 18 to the 30, 1906; a detailed account of which appears hereafter, and I may add that this is the first accident to our works that has occurred so as to delay or interrupt navigation, for over 25 years.

With the exception of this 12 days delay, navigation was uninterrupted since July 1, 1905, and the depth of water maintained in the various levels through the entire length of the canal, was excellent.

The freshet last spring was so mild as to be hardly worth mentioning, as there was no snow last winter, nor rain in the spring.

Many of our levels and reservoirs barely filled up to the required height; but I have noticed for many years that a low freshet means a rainy summer and good water for navigation; and so far this summer, this has occurred, everything being now up to spring height.

The principal works and repairs executed along the line of the canal are as follows:—

OTTAWA.

A new 24 inch coping was laid on the mitre sill of lock No. 4, the old coping having lifted and split from side to side last fall. Two fine concrete retaining walls were built at right angles to each lower wing wall of the lower lock, the said wings having become dangerously overhung.

The space behind these retaining walls has been filled in solid with earth, &c., thus obviating all danger of the walls falling. This work was done by day labour, the cement having been supplied by contract, as hereafter stated. Portions of the wharfs round the basin were replanked, and the roadway graded and macadamized. The usual pointing and grouting of the lock masonry was done by our lock men in the spring, as well as the painting of the 9 pairs of lock gates. A new front door was put in the lock house, the old one having become rotten.

STEWARTON BRIDGE.

Sundry small repairs were made to the flooring and to the swing span; and also to the bridge-keeper's house.

BANK STREET BRIDGE.

Small repairs were made to the bridge house, and also to the banks of the canal in the vicinity of the bridge.

CONCESSION STREET BRIDGE.

This bridge being new, required no repairs. A well was dug for the bridge-keeper's house.

HARTWELLS LOCKS.

One pair of lock gates were renewed. The bridge over the waste weir was rebuilt, and a new well sunk for the lock house. The middle piers and gate recesses of the locks are giving signs of failure, and arrangements are being made to rebuild them next winter. Small repairs were made to the tow path road and to the banks of the canal.

HOGSBACK LOCK.

Two pairs of lock gates were renewed. Repairs were made to the Apron below the west bulkhead. A new wire fence was built between the canal reservation and private property on the Gloucester side of the river. A new cast standard and pipe railing was erected on the walls of the approaches to the swing bridge—a long felt want. Small repairs were made to the tow path road and canal banks. A large land slide occurred on the river side of the cut; but this has been built in with cribwork and stone. The cause of this slide is somewhat difficult to assign, as it may have been occassioned by seapage from the canal cut above it, or from erosion of the river below. I am inclined to think that both these causes are involved, and for this reason open

cribwork was built into the gap, in order to allow any seapage to escape without making the bank sodden; and also to protect the bank from erosion from the river during freshets.

BLACK RAPIDS LOCK.

Portion of the upper wing wall on the west side of the lock was taken down and rebuilt. Extensive repairs were made to the long retaining dam, the back of which was carried away by a winter freshet last January, whilst the sheeting on the front was being taken off for renewal. Owing to the fact that the Jock river discharges into the upper level between this station and the next one, thus raising the water in short time, Black Rapids Station is always subjected to very heavy strain every spring and requires constant repairs.

LONG ISLAND LOCK.

A timber pier below the bulkhead was repaired, and sundry small repairs made to the station in general. The swing bridge across the locks is showing signs of age, and will have to be rebuilt next year.

MANOTICK BRIDGE.

Sundry small repairs made to flooring of bridge, by the bridge keeper.

WELLINGTON BRIDGE.

Small repairs made to piers of the bridge, and the whole has been replanked with 3-inch hemlock plank. A long existing dispute between the county of Carleton and the Department of Railways and Canals, with regard to the raising and grading of the approaches to this bridge, has been satisfactorily settled by the department having the work done to the satisfaction of the county council, and the latter having undertaken to perpetually maintain the said approaches for the future.

BECKETT'S LANDING BRIDGE.

Sundry small repairs were made to the bridge, by the bridge tender. The swing span will shortly require to be renewed.

BURRITT'S RAPIDS LOCK.

One pair of lock gates was renewed. The retaining dam was replanked and repaired, but the high water last winter prevented all the contemplated work being done, so it will be finished next year. Our diver was employed here cleaning out the bottom of the lock. Sundry small repairs were made to the station and swing bridge in general.

NICHOLSON'S LOCKS.

Sundry small repairs were made to the station in general.

CLOWE'S LOCK.

Small repairs were made to the station in general. The masonry of the waste weir is in very shaky condition; and arrangements for rebuilding it next winter are now being made.

MERRICKVILLE LOCKS.

Considerable repairs were made to the masonry of this large station. The mitre sill of the upper lock was taken down and rebuilt, as was the lower wall on the north side of the lower lock. The north wall of the lower basin was underpinned and

thoroughly grouted and pointed. Next winter the lower lock is to be pumped and the lower sill rebuilt, and repairs made to the lower wing walls; after which I venture to believe that this station will be in better shape than it has been for forty years. Sundry other small repairs were made to lock gates, &c.

KILMARNOCK LOCK.

Some new wire fencing was built round the station and sundry small repairs made to the dam and bulkhead. The latter is to be partially rebuilt next winter.

EDMONDS LOCK.

A large amount of repairs to the masonry of the station was contemplated for last winter; but owing to continual rain, the water prevented portion of the work being done. Both the upper wing walls were taken down and rebuilt; but the waste weir which was to have been rebuilt, could not be taken down on account of high water. The new stone was all delivered for this work last year, and it will be done next winter. The waste weir is badly shaken and leaks considerably; but aside from this latter, it will serve its purpose for this season. A new swing bar and push bars were framed and put on the upper gates and small repairs made in general.

OLD SLY'S LOCKS.

The swing bridge was re-planked, and three new courses of timber built on the lay by piers at the head of the locks. The south side of the locks was again grouted, and is now nearly full of cement, and all the leakage through the walls has been stopped.

SMITH'S FALLS COMBINED LOCKS.

Five new stoplogs were framed for the waste weir. The south side of the basin is gradually being filled up with foundry waste which is stopping leakage, and also reducing the useless area of the large basin, thus saving water for filling the same. The lock house is to be repaired this year.

SMITH'S FALLS DETACHED LOCK.

Sundry small repairs were made to the upper and lower mitre sills, also to the lock house and station in general, and some new stoplogs were framed.

POONAMALIE LOCK.

Sundry small repairs made to the station in general. The old timber retaining dam, which was used as a coffer dam during the construction of the new concrete dam below it, was removed by a Mr. Fox, to whom I gave the old timber for doing the work, on condition that he took all the stone out and piled it neatly, and cut out the iron work to be used by the department in the future.

BEVERIDGE'S LOCKS.

The retaining dam was replanked. Repairs made to the lock gates by our diver, and sundry repairs made to the dams, embankments, and to the station generally.

PERTH BASIN.

Repairs were made to the wharfs, bridges and culverts generally. Our diver was employed for two or three weeks removing boulders and obstructions from the channel

in the vicinity of the town. This work is not yet finished, as there are some ledges of rock in the vicinity of Dowsens that require to be blasted and removed.

THE NARROWS LOCK.

The exterior of the lock house was painted. A new flooring was laid on the by-wash, and sundry small repairs made to the station generally.

WOLF LAKE DAM.

This dam, which controls a series of back lakes and forms a reservoir for the summit level, was rebuilt last year.

NEWBORO' LOCK.

Sundry small repairs were made to the lock house and station generally.

CHAFFEY'S LOCK.

Some new wire fencing was erected round the government land. The foundations of the swing bridge were raised and repaired, and the approaches to the same raised. The bridge crossing the waste channel was repaired, and new stop log carriers and flooring were built for the by-wash. Two new sluice frames were put in lock.

DAVIS' LOCK.

A well was drilled for the lock house, by contract with Mr. M. L. Wilson, of Athens, the depth being between 45 and 50 feet. Repairs were made to the lower sill by our diver. The lower piers and wing walls of the lock are badly gone below water, and arrangements are being made to pump the lock and rebuild them next winter.

JONES' FALLS LOCKS.

The basin dam, which was of timber and clay, was taken down, and a fine stone structure substituted therefor. Most of the stone, with the exception of the coping, was taken from the two old lock sills which were rebuilt two years ago. An iron sluice gate of the wheel and thread pattern, has been put in the dam, and the bottom of the opening has been lowered, so that now the basin can be emptied in much quicker time and to a point about two feet lower than formerly. The long bridge was replanked with 3-inch hemlock, as was also the swing bridge and its approaches. Repairs were made to the big dam, and also to the sluices of the upper lock. A new set of stoplogs was framed for the waste weir.

BRASS' POINT BRIDGE.

A new kitchen was built for the bridge house. Small repairs were made to flooring of bridge.

UPPER BREWER'S MILLS LOCKS.

Three new sluice frames were put in. The waste channel bridge was replanked, and sundry small repairs made to the station generally.

LOWER BREWER'S MILLS (WASHBURN) LOCK.

This lock was pumped out last winter, and the west side, which was bulging badly, was taken down and rebuilt from the bottom. Two pairs of lock gates were renewed.

It was at this lock that the break occurred last month, the circumstances of which are as follows:—

The lockmaster reported to me early in June that the lower sill (which is always submerged) was leaking so badly that it was very difficult to open the upper lock gates on account of the current thereby effected. I sent the diver up to caulk the leaks with concrete, which he did, and we then closed the lock from the 15th to the 18th to allow it to set.

On the morning of the 18th we commenced locking, and had passed one vessel, when the entire lower sill lifted about 4 feet 6 inches at the mitre, which was occasioned by the vents in the sill having been stopped by the concrete, thereby giving the water a greater surface to press against.

This lock has always given trouble, as it is located in the wrong place, and is built on cross timbers bedded into a very poor foundation of soft clay and sand.

There is a lift of about 13 feet 6 inches here, and in my opinion the break was caused by the water having scoured out the clay, &c., from under the cross timbers to which the mitre sill was bolted, and then the great pressure when the lock was lifted simply drew the bolts and forced the entire sill up. Nothing was broken; the sill came up intact, and was perfectly sound. I immediately took our dredge to the scene, and after a somewhat exciting lockage managed to get her down through the lock to the lower level, where she could throw up clay for a coffer dam. The difficulty of unwatering the lock was increased by the fact that in order to maintain navigation above and below the lock the levels could not be run down to any great extent, so that the upper dam had 6 feet of water and the lower dam 10 feet of water to keep out.

The upper dam was made by putting the stoplogs across the lock and sheeting and caulking them. The lower dam, however, was a very different piece of work, and was built of two cribs in the centre, filled with stone, with upper and lower stringers whose ends rested on each side of the banks. Three-inch plank was then driven and spiked to the stringers, and inch boards nailed over this to break the joints. The dredge then piled clay against this sheeting, and I may say that this dam, which was 100 feet long and built to withstand 10 feet of water, was built and the lock pumped out in 60 hours. The old sill had to be blasted out, but the new sill, which is of 14-inch x 16-inch Douglas fir, filled with concrete, and strapped and bolted to the bottom timbers of the lock, was built inside of a week; after which 7 days were allowed for the concrete to set. When the lock was again filled it was found to be in better shape than it had ever been before, as in addition to the rebuilding of the mitre sill the chamber walls and the whole of the gate recess were filled up solid with cement, so that no water can now possibly get under the sill, and I anticipate no further trouble here.

As stated above, navigation was delayed 12 days to June 30, but the lock was not opened until July 9.

KINGSTON MILLS LOCK.

One pair of lock-gates was renewed. Some new wire fencing was built round the station. Four new stoplogs were made for Waste Weir. Some stone and gravel were placed on the embankments, and small repairs made to the station generally.

GENERAL.

The pointing and grouting of the lock and bridge masonry, and the painting of the lock-gates, bridges and other wooden structures, were done as usual this spring by our own lockmen. The annual supply of cement, amounting to 1,767 bbls., was purchased under contract with the International Portland Cement Company of Ottawa. The dimension timber for lock-gates, &c., was purchased under contract with Mr. M. Ryan of Smith's Falls, the quantity being 89,244 feet B.M. The annual supply of white lead was purchased under contract with P. D. Dodds & Co., of Montreal, the amount being 4,375 lbs.

DREDGING PLANT.

The dredge *Rideau* was employed the whole of last season in deepening and widening the cut between lower and upper Brewer's Mills Lock Station. She will reach the latter place by the end of the present season. Her hull, boiler and machinery are in first-class shape, but her crane, which is built of Douglas fir, is commencing to chafe, and when worn a little more will be replaced with oak timber. The ordinary repairs were made when fitting out this spring.

The tug *Shanly* was employed the whole of last season, in attending on the dredge, delivering stores and freighting stone and timber on her scow, and on inspection work.

This is her last season, as provision has been made in the estimates, by the department, for a new tug to replace her, as after this summer she will have been seventeen seasons in commission.

I attach hereto a table showing respectively the highest and lowest water, each month, at Ottawa and at Kingston Mills Lock station, during the past fiscal year.

I have the honour to be, sir, your obedient servant,

(Sgd.) ARTHUR T. PHILLIPS, *M.C.S.C.E.*,
Superintending Engineer.

TABLE showing monthly, the highest and lowest water on the lower mitre sills of Locks Nos. 1 and 47, at Ottawa and Kingston Mills Lock Stations, respectively, from July 1, 1905, to June 30, 1906.

RIDEAU CANAL.

OTTAWA, LOCK NO. 1.						KINGSTON MILLS, LOCK NO. 47.					
Highest.			Lowest.			Highest.			Lowest.		
	Ft.	In.		Ft.	In.		Ft.	In.		Ft.	In.
July 1	11	8	July 26	10	0	July 17-22	9	5	July 1-7	9	2
August 1-2	10	3	Aug. 24-31	7	3	Aug. 1-16	9	4	Aug. 17-25	9	3
Sept. 20	8	1	Sept. 17-18	7	1	Sept. 1-3	9	4	Sept. 14-30	9	2
Oct. 27-29	9	2	Oct. 10	6	8	Oct. 1-4	9	2	Oct. 25-31	8	10
Nov. 1-3	9	0	Nov. 24-25	7	11	Nov. 1-5	8	9	Nov. 26-30	8	6
Dec. 5-8	9	2	Dec. 29-31	8	5	Dec. 28-31	8	11	Dec. 1-5	8	6
Jan. 26-27	11	8	Jan. 11-14	8	2	Jan. 1-5	8	11	Jan. 24-31	8	8
Feb. 26	11	2	Feb. 10-14	8	11	Feb. 15-22	8	11	Feb. 1-5	8	9
Mar. 31	11	1	Mar. 24-26	8	8	Mar. 1-5	8	10	Mar. 28-31	8	6
April 30	14	5	April 8-12	9	11	April 27-30	8	9	April 1-20	8	6
May 17-19	18	0	May 1-2	14	3	May 10-16	8	11	May 1-2	8	9

(Sgd.) A. T. PHILLIPS,
Superintending Engineer.

Rideau Canal Office,
Ottawa July 1, 1906.

ST. PETER'S CANAL.

St. Peters, C.B., June 30, 1906.

Sir,—I have the honour to submit my annual report on work and operation on the St. Peters canal, my charge during the fiscal year ending June 30, 1906.

There has not been very much repairs done to the canal the past year. The outside high water gate was very much out of order, the toe rollers and ground castings being displaced on the track. I had a marine diver to do the necessary repairs, the toe rollers not having the necessary bevels to correspond with the curve in the track, caused it to stick or clog in the bearings and was simply dragging on the track; I have now on hand six new toe rollers that I will put in place when navigation closes. The outside low water gate on east side will require the same repairs, as diver reports toe roller clogged and not moving in the bearings.

The swing bridge is causing more or less trouble every week, it is a very old bridge and has served its time. If the department intends to operate it much longer, I will have to get authority to get a new ground circle cast for the turn table. No less than three of the castings have parted in the last week, and I had to get replaced with seasoned hardwood in order to operate the bridge. The travelling public have acquired a habit of trotting their teams across and something should be done to prevent them, as the surging is very straining on the turn table and bridge.

The department has caused a survey in order to define the lands owned by the government, said survey has been completed and a report has been forwarded to the department by Mr. Kenneth McIntosh, surveyor, and now that the lines have been defined I would like to get authority to place a wire fence on east side of canal, in order the prevent people from trespassing and encroaching on the St. Peters canal property. That east line in through the woods, and if a fence is not placed on it it will be closed up in a few years. Placing a fence there will not interfere with the public at all as can be pointed out to you by Mr. E. V. Johnson, inspecting engineer. The general traffic on canal is up to the average. Navigation closed on January 9, 1906, and opened on April 23, 1906. There is one tidal lock and four pairs of gates on St. Peters canal.

I have the honour to be, sir,

Your obedient servant,

JNO. H. DEVERAUX,

Lockmaster.

M. J. Butler, Esq., C.E.,
Deputy Minister and Chief Engineer,
Department of Railways and Canals,
Ottawa, Ont.

Peterborough, August 6th, 1906.

Sir,—I beg to send you herewith my annual report for the fiscal year ending June 30, 1906.

I have the honour to be, sir,

Your obedient servant,

(Sgd.) J. H. McClennan,

Superintendent.

L. K. Jones, Esq.,
Secretary Department of Railways and Canals,
Ottawa, Ont.

TRENT CANAL.

PETERBOROUGH, August 6, 1906.

SIR,—I have the honour to submit my annual report for the fiscal year ending June 30, 1906, on the works under my charge known as the Trent canal.

The following repairs were made:—

TRENT BRIDGE.

Two rest piers and two entrance piers were built and provision was made for the entrance to the bridge with booms.

HASTINGS.

The lower channel was blasted and dredged and a protection wall was built to the east side of the lock chamber.

RICE LAKE.

At Hiawatha on Rice lake a channel was dredged through the old Cobourg railroad bed across the lake, shortening the distance from the Otonabee river to Hastings about three miles.

BENSFORT BRIDGE.

Two rest piers and two entrance piers were built and provision was made with booms for entrance to the bridge.

PETERBOROUGH.

The steel work on the dam was painted, the banks were sodded and a wire fence was erected around the government property. The lockmaster's office and residence were painted. The storehouse was also painted.

HYDRAULIC LIFT LOCK NO. 1.

An accident occurred to the bank on the east side of the canal, in the reach between the Norwood road and Warsaw road. This has been repaired. The leaks which occurred between the Norwood road and hydraulic lift lock No. 1, have also been repaired. Repairs have been made to the guard gates in the reach between the hydraulic lift lock and Nassau, and the guard gates have been equipped with an apparatus for opening and closing same.

PETERBOROUGH-LAKEFIELD SECTION.

On the Peterborough-Lakefield section, dredging has been done whereby the channel for navigation purposes has been greatly improved.

LAKE KETCHEWANOOKA.

The channel between Lakefield and Young's point has been improved by dredging.

YOUNG'S POINT.

A concrete entrance pier 300 feet long was built to Young's point locks and the entrance deepened to nine feet. A concrete pivot pier and abutment for a new steel swing bridge have been built.

BOBCAYGEON.

The dam was rebuilt, piers were retopped with concrete from 2 feet below low water mark and new bridge built on the dam.

FENELON FALLS.

The swing bridge was repaired and a lighthouse was placed at the entrance of Fenelon river. Electric lights were put on the locks which is much appreciated by steamboat men.

LINDSAY.

The wharf was put in good repair, and the channel from Lindsay town to Sturgeon lake was cleaned out of old stumps and sunken logs which accumulate every year. We also built two beacons and placed them in the river and repaired and put in good order the two lighthouses at the entrance from Sturgeon lake to Lindsay river.

ROSEDALE.

The dam was repaired and gravelled. The swing bridge was put in good working order.

BURLEIGH FALLS.

The dam was rebuilt from low water mark up and was strengthened by a pier 12 x 35 and 10 feet deep which was placed on the lower side.

VICTORIA ROAD.

The dam was repaired and gravelled and a ditch built to carry away the seepage.

CHEMONG.

The steamboat wharf was rebuilt.

GULL RIVER.

Eagle lake dam was rebuilt, and Hawk lake dam repaired.

BURNT RIVER.

The dam at Kinmount was generally repaired. The dam was retopped and a pair of winches placed on same. Farquhar dam was re-gravelled and new stop logs put in. Repairs were also made to Grace lake, Big Bear lake, Little Bear Lake, Pine lake, Contains lake and Devil's lake.

MISSASSUAGA RIVER.

Repairs were made to the new slide and the road was gravelled. The dam of Gull lake was re-gravelled and new stop logs were put in. New stop logs were also put in Bottle lake dam. The dam was repaired.

BRIDGES RE-PLANKED.

The following swing bridges were re-planked and painted: Trent bridge, Hastings bridge, bridge at Lock No. 7, Peterborough bridge, bridge at Lock No. 1, 6, Peterborough, Norwood and Warsaw road bridges between lift lock No. 1 and Nassau, Nassau bridge, Lakefield, Burleigh Falls, Fenelon Falls, and Rosedale.

STEAMER 'EMPIRE.'

The steamer *Empire* has been employed with the dredge *Emmerson* during the whole season.

STEAMER 'SOVEREIGN.'

The steamer *Sovereign* has been used in buoying out channels, painting buoys, towing material for works at various places. It has also been used by the engineers for inspection purposes.

THE DREDGE 'EMMERSON.'

The dredge *Emmerson* has been completed. The hull was built in 1904. The new machinery was placed in her last fall. Two new dump scows which were commenced in 1904, were completed. The tug *Empire* was repaired and put in as good condition as possible. She is a very old boat.

THE STAFF.

The members of the staff have all worked for the interest of the canal, and the appearance of the canal from one end to the other shows that they have done their part well.

I have the honour to be, sir,
Your obedient servant,

(Sgd.) J. H. McCLELLAN,
Superintendent.

M. J. Butler, Esq., C.E.,
Deputy Minister and Chief Engineer,
Department of Railways and Canals,
Ottawa, Ont.

Trent Canals Surveys, Engineer's Office,
Ottawa, August 14, 1906.

Sir,—I have the honour to submit the following report upon the progress made during the fiscal year ended June 30, 1906, with the surveys, under my charge, of the various routes for the Trent canal.

The surveys for outlets to Lake Ontario: from Rice lake to Port Hope, Cobourg and Trenton respectively; and from Lake Couchiching to Georgian bay, via the Severn river, west branch of Holland river, and the traverse and contour survey of Rice lake —which had been in progress at June 30, 1905—were continued and finally completed on December 2, 1905, as likewise the survey of the Black river from Sutton to Lake Simcoe, Ontario (a distance of about 3 miles). The survey parties were paid off and disbanded on December 2, 1905, and the staff returned to Ottawa, and commenced the office work on plans, profiles, &c.

In accordance with instructions, I made a personal examination (in October, 1905) of that portion of the Gull river between Coboconk and Minden, to ascertain the practicability, cost, &c., of improving it for navigation; and in January, 1906, a reconnaissance survey for a proposed outlet for the Trent Canal from Kempenfeldt bay—Lake Simcoe—to the valley of and via the Nottawasaga river to Nottawasaga bay—Georgian bay. Subsequently a report on the latter was prepared and submitted. On February 17, 1906, detailed plans, profiles, sections and specification for section No. 1 from Cook's bay to Holland Landing—of proposed 'Improvements on the east branch of the Holland river to Newmarket'—were submitted.

Several detailed plans of proposed dams, locks, bridges &c., for section No. 2—Holland Landing to Newmarket—were prepared, and all plans required for this section will be ready at an early date.

Good progress has also been made with the plans and estimates of quantities for the main outlets; every effort being directed towards the consummation of this work, so as to facilitate the preparation of the final report.

I am, sir,
Your obedient servant,

E. J. WALSH,
Engineer in Charge.

M. J. BUTLER, Esq.,
Deputy Minister and Chief Engineer,
Department of Railways and Canals.
Ottawa.

OFFICE OF THE GENERAL CONSULTING ENGINEER TO THE GOVERNMENT AND CHIEF ENGINEER OF THE WESTERN DIVISION OF THE NATIONAL TRANSCONTINENTAL RAILWAY.

OTTAWA, CANADA, September 29, 1906.

SIR,—With a view of presenting to you a statement of the progress made up to September 1, 1906, with the surveys, location and construction of the western division of the Grand Trunk Pacific Railway, I have the honour to report as follows:—

The preliminary surveys have sufficiently advanced to enable the company to submit route maps of the line from Winnipeg touching the towns of Saskatoon and Edmonton, and passing through the 'Yellow Head Pass' to a point on the Pacific slope at the junction of the Salmon river with the Fraser river, a distance of about 1,247 miles. Of this the government have approved from Winnipeg to a point a short distance east of Edmonton, about 776 miles in all.

Edmonton being favourably situated for the establishment of the principal workshops, sorting and distributing yards, cattle yards, warehouses and grain elevators, a large area of land has been purchased for the purpose, which will give ample room for quick despatch of business at that important point.

Plans and profiles of location have been submitted by the company and approved by the government from township 12, range 7, section 4, west of the first meridian (Portage la Prairie), to township 53, range 23, west of the fourth meridian (a point about 8 miles east of Edmonton), a distance of about 720 miles, upon which section the works of construction are in progress.

I have recently made a tour of inspection of this section of the road, and I find the location has been carefully selected with a view to obtaining first-class alignment and favourable grades; the curvature is light and the maximum grades against the traffic going west 0·50 per 100. In securing so good an alignment and gradients, heavy work has been encountered in the form of high embankments, deep cuttings and large structures at certain points, such as at Pine, Mule, Minnawashta, Birdtail and Cut Arm creeks; the little Saskatchewan river; the Touchwood, Eagle and Beaver hills; the Qu'Appelle valley, and at Battle river.

With a road so constructed and, consequently, capable of economical operation, and with the communication to be afforded with the port of Fort William at the head

of navigation on Lake Superior, by means of the branch line now being built from a point on the main line east of Winnipeg, the railway should be in an excellent position to share with its competitors the increasing traffic of the Northwest and of the grain fields of the prairies.

I have not treated here of the western division as a whole from Winnipeg to the Pacific coast, as the surveys are not at present sufficiently advanced to enable any reliable opinion to be formed as to the character of the alignment and grades to be obtained through the mountain region. I, however, may say that I have every reason to feel confident that a satisfactory location will be obtained.

The prairie country through which the road passes is a fine farming district, the soil being for the most part rich. Many settlers are taking up 'homesteads' along the route, as is evidenced by the large number of new 'shacks' recently built, and others, in course of erection, which are visible both north and south of the road.

I was disappointed with the progress made with the works of construction; they had not advanced, and were not advancing, as rapidly as could be desired. This is due to the impossibility of securing the requisite number of men for a vigorous prosecution of the work. In fact, so short of men were the contractors that, in several instances, many teams of horses were standing idle in the stables, owing to inability to secure teamsters to drive them. I think it is manifest that the supply of labouring men in Canada at the present time is insufficient to meet the demand. The same complaint is heard from one end of Canada to the other, the supply is not within 40 to 50 per cent of the number of men required to carry out the contracts in hand. It is, however, only fair to state that the works executed are of a substantial character. The embankments and cuttings are neatly finished off, and the latter are well drained by side surface ditching.

The following is a statement of the approximate quantities of work on the section between Portage la Prairie and Edmonton, and the amount of work executed thereon up to September 1, 1906:—

Character of Work.	How measured.	Total quantity of work.	Quantity of work done to Sept. 1, 1906.
Clearing	Acres	1,420	1,409
Grubbing	"	260	97
Earth excavation	Cubic yards.	17,700,000	5,091,000
Rock "	"	797,000	314,700
Culverts	Lineal feet	62,000	17,900
Large trestle bridges	"	16,000	4,400
Smaller pile bridges	"	11,000	2,060
Steel bridges over large rivers	"	5,700	Nil.
Telegraph and Telephone Lines	Miles	750	20,000 telegraph poles delivered.
Fencing	"	1,500	Nil.
Track complete, including ballasting	"	816	50,000 tons rails delivered; 160,000 ties delivered; 2 miles track laid.
Station and other buildings	Number	265	Nil.
Cattle-guards and sign boards	"	1,500	"
Rip-rap	Cubic yards.	20,000	200

The materials for the balance of the culverts, trestles and pile bridges, as well as the materials for the fencing, telegraph and telephone lines can be taken out in the winter months and delivered upon the ground with much greater facility than in the summer season, and if nothing unforeseen occurs, it may, I think, be anticipated that the track will reach Edmonton by the latter end of the autumn of 1907.

I have the honour to be, sir,
Your obedient servant,

COLLINGWOOD SCHRIEBER,
General Consulting Engineer to the Government
& Chief Engineer W. Div. Nat'l Trans'l Ry.

The Honourable H. R. EMMERSON,
Minister of Railways and Canals,
Ottawa, Ont.

PART III

RAILWAY SUBSIDIES

No. 1.

RAILWAY SUBSIDIES.

TABLE of per mile Cash Subsidies paid in aid of Railway Construction, showing amount of Subsidy granted for same Railways.

Number.	Name of Railway.	No. of miles built up to June 30, 1906.	No. of miles paid and provided for.	Subsidy paid and available at June 30, 1906.	Subsidy paid to June 30, 1906.	Subsidy paid to September 30, 1906.
				$ cts.	$ cts.	$ cts.
1	Albert Southern	16	16	50,460 00	50,460 00	50,460 00
2	†Atlantic and Lake Superior	30	30	165,734 00	146,490 84	146,490 84
3	†Algoma Central and Hudson Bay	77	91	924,976 00	924,976 00	924,976 00
4	Baie des Chaleurs	70	70	620,000 00	620,000 00	620,000 00
5	Baie of Quinte	15	35	112,000 00	69,120 00	69,120 00
6	Beauharnois Junction	19·50	19·50	62,400 00	62,400 00	62,400 00
7	Belleville and North Hastings	6·84	6·84	21,888 00	21,888 00	21,888 00
8	Beersville Coal and Railway Co	6·48	7	20,736 00	20,736 00	20,736 00
9	Branttord, Waterloo and Lake Erie	18	18	57,600 00	57,600 00	57,600 00
10	Brockville, Westport and Sault Ste. Marie	44·50	44·50	105,200 00	105,200 00	105,200 00
11	Bruce Mines and Algoma	18	18	53,920 00	53,920 00	53,920 00
12	Bouetouche and Moncton	31·75	31·75	101,600 00	101,600 00	101,600 00
13	Canada Atlantic	54·05	54·05	282,355 20	282,355 20	282,355 20
14	Canada Central	120	120	1,525,250 00	1,525,250 00	1,525,250 00
15	†Canada Eastern	107	107	350,400 00	350,400 00	350,400 00
16	†Canadian Pacific	1,905	1,905	25,000,000 00	25,000,000 00	25,000,000 00
17	" (extension)*	676	695·83	5,903,322 00	5,903,322 00	5,903,322 00
18	†Cape Breton, extension	30	30	182,400 00	182,400 00	182,400 00
19	Caraquet	67	67	224,000 00	224,000 00	224,000 00
20	Central (of New Brunswick)	45·66	89·50	238,400 00	142,400 00	142,400 00
21	Cornwallis Valley	14	14	44,800 00	44,800 00	44,800 00
22	Columbia and Kootenay	27 75	27·75	88,800 00	88,800 00	88,800 00
23	†Canadian Northern	490	490	1,909,132 00	1,909,132 00	1,909,132 00
24	Chateauguay and Northern	58	58	307,595 00	307,595 00	307,595 00
25	Cap de la Madeleine	2·32	2·32	7,424 00	7,424 00	7,424 00
26	†Coast of Nova Scotia (now Halifax and Yarmouth)	50	61	160,000 00	160,000 00	160,000 00
27	†Central Ontario	21	40	67,200 00	67,200 00	67,200 00
28	Cumberland	14	14	39,850 00	39,850 00	39,850 00
29	Dominion Lime Co	4·80	4·80	15,360 00	15,360 00	15,360 00
30	Dominion Coal Co	27·44	27·44	87,808 00	87,808 00	87,808 00
31	†Drummond County	133·00	135·60	423,936 00	423,936 00	423,936 00
32	†East Richelieu Valley	21·86	21·86	69,952 00	69,952 00	69,952 00
33	Elgin, Petitcodiac and Havelock	12	12	38,400 00	38,400 00	38,400 00
34	Erie and Huron	30	30	96,000 00	96,000 00	96,000 00
35	Esquimalt and Nanaimo	71	71	750,000 00	750,000 00	750,000 00
36	Fredericton and St. Mary's Bridge Co	1·33	1·33	30,000 00	30 000 00	30,000 00
37	Grand Trunk, Georgian Bay and Lake Erie	12·42	12·42	39,744 00	39,744 00	39,744 00
38	Grand Trunk	Pont.	Pont.	500,000 00	500,000 00	500,000 00
39	Great Eastern	12·50	12·50	40,345 00	40,345 00	40,345 00
40	†Great Northern	140·42	143·59	557,788 31	557,788 31	557,788 31
41	Guelph Junction	15·25	15·25	46,000 00	46,000 00	46,000 00
42	†Gulf Shore	16·78	16·78	53,699 20	53,699 20	53,699 20
	Carried forward	4,533·65	4,667·61	41,376,474 71	41,218,351 55	41,218,351 55

TABLE of per mile Cash Subsidies granted and paid in aid of Railway Construction, &c.— ***Continued.***

Number.	Name of Railway.	No. of miles built up to June 30, 1906.	No. of miles paid and provided for.	Subsidy paid and available at June 30, 1906.	Subsidy paid to June 30, 1906.	Subsidy paid to September 30, 1906.
				$ cts.	$ cts.	$ cts.
	Brought forward	4,533·65	4,667·61	41,376,474 71	41,218,351 55	41,218,351 55
43	Halifax and South Western	98	231	739,200 00	653,776 00	653,776 00
44	Harvey Branch	3	3	5,553 57	5,553 57	5,553 57
45	Hereford	48·50	48·50	155,200 00	155,200 00	155,200 00
46	Irondale, Bancroft and Ottawa	45	45	144,000 00	144,000 00	144,000 00
47	International (Quebec)	49	49	156,800 00	156,800 00	156,800 00
48	International (N.B.), formerly Restigouche and Western	15	77	246,400 00	127,208 07	127,208 07
49	†Inverness Ry. & Coal Co	60·97	98	390,268 00	368,545 97	368,545 97
50	James Bay		270	864,000 00	651,264 00	651,264 00
51	Joggins	12	12	37,500 00	37,500 00	37,500 00
52	Kingston and Pembroke	15	15	48,000 00	48,000 00	48,000 00
53	Kingston, Napanee and Western	61·35	61·35	208,732 80	208,732 80	208,732 80
54	L'Assomption	3·50	3·50	11,200 00	11,200 00	11,200 00
55	†Lake Erie and Detroit River	126·90	128·05	475,851 00	475,851 00	475,851 00
56	Lake Temiscamingue Colonization	45·84	45·84	310,335 95	310,335 95	310,335 95
57	Leamington and Lake St. Clair	16	16	51,200 00	51,200 00	51,200 00
58	Lindsay, Bobcaygeon and Pontypool	38·70	38·70	185,173 06	185,173 06	185,173 06
59	Lotbinière and Megantic	30	30	96,000 00	96,000 00	96,000 00
60	Manitoulin and North Shore	12·60	12·60	204,800 00	32,000 00	32,000 00
61	Middleton and Victoria Beach	39·30	39·30	125,760 00	98,092 80	98,092 80
62	Montreal & Sorel (now South Shore)	61·50	126·67	517,541 92	296,998 38	296,998 38
63	Montreal and Lake Champlain	83	83	103,600 00	103,600 00	103,600 00
64	Montreal and Western	70	70	361,270 00	361,270 00	361,270 00
65	Montreal and Lake Maskinongé	12·90	12.90	41,280 00	41,280 00	41,280 00
66	Montreal and Ottawa	60	60	192,000 00	192,000 00	192,000 00
67	†Montreal and Province Line	18·3	18·3	58,560 00	58,560 00	58,560 00
68	Montfort Colonization	32·20	32·20	167,440 00	167,440 00	167,440 00
69	Maganetawan River	1·11	1·11	3,552 00	3,552 00	3,552 00
70	†Massawippi Valley	1·68	1·68	5,376 00	5,376 00	5,376 00
71	†Midland (Nova Scotia)	57·18	58	365,418 00	362,260 30	362,260 30
72	Nakusp and Slocan	36·80	36·80	117,760 00	117,760 00	117,760 00
73	New Brunswick and P. E. Island	35·45	35·45	113,440 00	113,440 00	113,440 00
74	New Brunswick Coal and Ry.	15	45	144,000 00	48,000 00	48,000 00
75	New Glasgow Iron and Coal Co	12·45	12·45	39,840 00	39,840 00	39,840 00
76	Nicola, Kamloops and Similkameen		45	292,800 00	110,592 00	110,592 00
77	Northern Colonization	20·90	20·90	133,760 00	133,760 00	133,760 00
78	Northern Pacific Junction	110	110	1,320,000 00	1,320,000 00	1,320,000 00
79	Nova Scotia Central	73·50	73·50	235,200 00	235,200 00	235,200 00
80	Ontario, Belmont and Northern	9·60	9·60	30,720 00	30,720 00	30,720 00
81	Ontario and Quebec	61·25	61·25	196,000 00	196,000 00	196,000 00
82	Orford Mountain	26·50	53·50	168,814 50	168,814 50	168,814 50
83	Oshawa Railway and Navigation Co.	7	7	22,400 00	22,400 00	22,400 00
84	†Ottawa, Northern and Western (formerly Ottawa & Gatineau Valley)	82·28	86	410,688 00	410,688 50	410,688 00
85	†Ottawa and New York	53·87	53·87	262,384 00	262,384 00	262,384 00
86	†Ottawa, Arnprior and Parry Sound	159·58	159·58	779,712 00	779,712 00	779,712 00
87	Parry Sound Colonization	47·75	47·75	152,800 00	152,800 00	152,800 00
88	Pontiac and Pacific Junction	70	70	193,578 00	193,578 00	193,578 00
89	†Phillipsburg Junction	7·41	7·41	23,712 00	23,712 00	23,712 00
90	Pontiac and Renfrew	4·25	4·25	13,600 00	13,600 00	13,600 00
91	Pontiac and Pacific and Ottawa and Gatineau	Bridge.	Bridge.	212,500 00	212,500 00	212,500 00
92	†Pembroke Southern	20	20	64,000 00	64,000 00	64,000 00
93	Port Arthur, Duluth and Western	84·75	84·75	271,200 00	271,200 00	271,200 00
94	Quebec Central	74·86	74·86	348,342 00	348,342 00	348,342 00
95	Quebec Bridge Co	Bridge.	Bridge.	374,353 33	374,353 33	374,353 33
96	Quebec and Lake St. John	245·85	245·85	1,230,743 50	1,092,759 50	1,092,759 50
97	Quebec, Montmorency & Charlevoix	30	30	96,000 00	96,000 00	96,600 00
98	Shuswap & Okanagan	51	51	163,200 00	163,200 00	163,200 00
99	South Norfolk	17	17	54,400 00	54,400 00	54,400 00
100	St. Catharines and Niagara Central	12	12	38,400 00	38,400 00	38,400 00
	Carried forward	7,021·23	7,830·08	55,152,774 34	53,715,216 78	53,715,216 78

SESSIONAL PAPER No. 20

TABLE of per mile Cash Subsidies granted and paid in aid of Railway Construction, &c.—*Concluded.*

Number.	Name of Railway.	No. of miles built up to June 30, 1906.	No. of miles paid and provided for.	Subsidy paid and available at June 30, 1906.	Subsidy paid to June 30, 1906.	Subsidy paid to September, 30 1906.
				$ c.	$ c.	$ c.
	Brought forward	7,021·23	7,830·08	55,152,774 84	53,715,216 78	53,715,216 78
101	St. Clair Frontier Tunnel	2·23	2·23	375,000 00	375,000 00	375,000 00
102	St. Lawrence and Lower Laurention	38·85	38·85	217,600 00	217,600 00	217,600 00
103	St. Louis, Richibucto & Buctouche	7	7	22,400 00	22,400 00	22,400 00
104	†St. Lawrence and Adirondack	33·51	33·51	149,481 60	149,481 60	149,481 60
105	†St. Mary River	44	46	177,400 00	148,094 00	148,094 00
106	St. Stephen and Milltown	4·64	4·64	14,848 00	14,848 00	14,848 00
107	Schomberg and Aurora	14·42	14·42	46,144 00	46,144 00	46,144 00
108	Temiscouata	112·95	112·95	645,950 00	645,950 00	645,950 00
109	†Thousand Islands	5·19	5·19	29,840 00	29,840 00	29,840 00
110	†Tilsonburg, Lake Erie and Pacific	33·96	47·50	117,431 48	117,431 48	117,431 48
111	Tobique Valley	27·88	27·88	134,016 00	134,016 00	134,016 00
112	Toronto, Grey and Bruce	4·58	4·58	14,656 00	14,656 00	14,656 00
113	†United Counties	59	59	188,816 00	188,816 00	188,816 00
114	Waterloo Junction	10·25	10·25	32,800 00	32,800 00	32,800 00
115	Western Counties	20	20	500,000 00	500,000 00	500,000 00
116	West Ontario Pacific	18·75	18·75	60,000 00	60,000 00	60,000 00
117	York and Carleton	5·73	5·73	18,336 00	18,336 00	18,336 00
	Total	7,464·17	8,288·56	57,897,493 42	‡56,430,629 86	56,430,629 86

‡Add subsidy of used rails as per statement, part iii., page 7, $152,305.20, and Atlantic and Northwestern, $3,172,200.00, less subsidy Canadian Pacific Railway, main line, $25,000,000, and Western Counties Railway, $560,000, which will then agree with statement of subsidies in part ii, page 50, viz., $34,255,135.06.

*Includes the mileage of the North Shore Railway, 160 miles.

†By 60-61 Vic., cap. 4, 62-63 Vic., cap. 7, 63-64 Vic., cap. 8, 1 Edward VII., cap. 7, 3 Edward VII., cap. 57, and 4 Edward VII., cap. 34, subsidy was authorized on certain mileage of this railway, specified in the Act of Parliament, of $3,200 per mile and a further subsidy beyond the sum of $3,200 per mile, of 50 per cent on so much of the *average cost* of the said specified mileage subsidized as is in excess of $15,000 per mile, such subsidy not exceeding in the whole the sum of $6,400 per mile.

The amount of certain of the subsidies authorized by Parliament given in this statement, includes the determined portion of the subsidies under 60-61 Vic., cap. 4, 62-63 Vic., cap. 7, 63-64 Vic., cap. 8, and 1 Edward VII., cap. 7, 3 Edward VII., cap. 57, and 4 Edward VII., cap. 34, viz.: The amount produced by the $3,200 per mile, but the other portion is now an undertermined amount, and therefore cannot be shown here.

STATEMENT showing Railways receiving Cash Subsidies of fixed amounts, payable Annually or Semi-annually for fixed periods of years.

No.	Name of Railway.	Miles subsidized.	Amount of Instalment.	Amount paid up to June 30, 1906.
				$ c.
1	International (Atlantic and Northwest Railway Co.)	252	$93,300 per ½ year for 30 years	3,172,200
2	Kingston, Smith's Falls and Ottawa Railway Co.	56	$ 3,136 " 21 "	Nil.
	Total	308		3,172,200

STATEMENT showing Railways aided by the Grant of Loans.

No.	Name of Railway.	Amount of Loans authorized.	Amount loaned.
		$	$ c.
1	Albert Railway Co.	15,000	14,725 56
2	Fredericton and St. Mary's Bridge Co.	300,000	300,000 00
3	St. John Bridge and Railway Extension Co.	500,000	433,900 00
	Total	815,000	748,625 56

STATEMENT showing Railways subsizided by the Grant of used Iron Rails valued at the amount set forth.

No.	Name of Railway.	Tons of used Rails.	Subsidy on value of Rails.	Subsidy on used Rails paid.
			$ c.	$ c.
1	Central Railway Company of New Brunswick	4,052	83,612 54	83,612 54
2	Elgin, Petitcodiac and Havelock Ry. Co.	2,201	44,252 82	44,252 82
3	Chatham Branch Railway Co.	958	24,439 84	24,439 84
	Total	7,211	152,305 20	152,305 20

STATEMENT showing Railways aided by the Loan of used Iron Rails valued at the amount set for.

No.	Name of Railway.	Tons of used Rails.	Value of used Rails loaned.	Remarks.
			$ c.	
1	Kent Northern Railway Co.	2,549	58,334 27	By 51 Victoria, chapter 3, these used rails will be granted as a subsidy, (the section of road to be first laid with new steel rails weighing not less than 50 lbs. per lin. yard and after an O.C. had been passed authorizing transfer.)
2	Halifax Cotton Co.	233	4,335 00	
3	Steel Company of Canada.	597	11,964 66	
4	Albert Railway Company	726	14,665 45	
	Total	4,105	89,299 38	

No. 2

LIST OF RAILWAY SUBSIDY ACTS PASSED IN EACH YEAR.

NOTE.—The marginal number opposite each subsidy has reference to the alphabetical list in the Deputy Minister's report showing the action taken in cases where a contract for work has been made with any company.

By the Acts of Parliament below specified, authority has been placed in the hands of the Governor in Council to grant, upon certain conditions, aid towards the construction of various lines of railway throughout the Dominion, as follows, namely :—

By the Acts of 45 Vic., cap. 14, 1882 *(Assented to 17th May, 1882)* :—

1. For a railway from Gravenhurst to Callander, both in the province of Ontario, a subsidy not exceeding $6,000 per mile, nor exceeding in the whole $660,000

2. For a railway from St. Raymond to Lake St. John, both in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 384,000

3. For a railway from a point on the Intercolonial Railway at Rivière du Loup or Rivière Ouelle, in the province of Quebec, or between them, to Edmundston, in the province of New Brunswick, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 240,000

4. For a railway from Oxford to New Glasgow, both in the province of Nova Scotia, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 224,000

"The said subsidies to be granted to such companies as shall be approved by the Governor in Council as having established, to his satisfaction, their ability to complete the said railways respectively, within a reasonable time, to be fixed by Order in Council, and according to descriptions and specifications to be approved by the Governor in Council on the report of the Minister of Railways and Canals, and specified in an agreement to be made by the company with the Government, and which the Government is empowered to make, and to be payable out of the Consolidated Revenue Fund of Canada, by instalments on the completion of each ten miles of railway, proportionate to the value of the portion so completed in comparison with the whole work undertaken, such proportion to be established by the report of the said Minister; provided always, that the granting of such bonuses or subsidies shall be subject to such conditions for securing such running powers or traffic arrangements and other rights as will afford all reasonable facilities and equal mileage rates to all railways connecting therewith, as the Governor in Council may determine."

By the special Act 45 Vic., cap. 55, 1882 *(Assented to 17th May, 1882* :—

5. A subsidy authorized in favour of "The Chignecto Marine Transport Railway Company," provided that they construct and thereafter maintain and operate a ship railway, to be approved by the Government, across the Isthmus of Chignecto, from the Gulf of St. Lawrence to the Bay of Fundy, per year, for twenty-five years..... $150,000

By the Act 46 Vic., cap. 25, 1883 *(Assented to 25th May, 1883)* :—

6. To the Baie des Chaleurs Railway Company, for 100 miles of their railway, from Métapediac, on the Intercolonial Railway, to Paspebiac, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 320,000

7. To the Caraquet Railway Company, for 36 miles of their railway, from a point near Bathurst to Caraquet, in the province of New Brunswick, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole $115,200

8. To the Gatineau Valley Railway Company, for the first 50-mile section of their railway, from Hull station, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole .. 160,000

9. To the Great American and European Short Line Railway Company, for 80 miles of their railway, from Canso to Louisburg or Sydney, in the province of Nova Scotia, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 256,000

10. To the International Railway Company, for 49 miles of their railway, from Sherbrooke, in the province of Quebec, to the international boundary line, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 156,800

11. To the Northern and Western Railway Company, for 32 miles of their railway, from the Intercolonial Railway, near the Miramichi, to Moran's, near Demphy village, in the province of New Brunswick, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole .. 102,400

12. To the Montreal and Western Railway Company, for the first 50-mile section of their railway, out of St. Jérôme, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole. 160,000

13. To the Napanee, Tamworth and Quebec Railway Company, for 28 miles of their railway, from Napanee to Tamworth, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 89,600

14. To the Quebec and Lake St. John Railway Company, for 25 miles of their railway, from St. Raymond to Lake St. John, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 80,000

In addition to the subsidy granted by the Act forty-fifth Victoria, chapter fourteen.

15. For a railway from the International Railway at Petitcodiac to Havelock Corner, in the province of New Brunswick, 12 miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 38,400

16. For a railway from Gravenhurst to Callander, 110 miles, a subsidy not exceeding $6,000 per mile, nor exceeding in the whole 660,000

In addition to the subsidy granted by the Act forty-fifth Victoria, chapter fourteen.

"The nine subsidies first mentioned to be granted to the companies hereinbefore named respectively; and the two subsidies last mentioned to be granted to such companies as shall be approved by the Governor in Council as having established to his satisfaction their ability to complete the said railways, respectively; and all the eleven lines above mentioned, and also the lines of railway in respect of which it is provided by the Act of forty-fifth Victoria, chapter fourteen, that subsidies may be granted, shall be commenced within two years from the first day of July next, and completed within a reasonable time, not to exceed four years from and after the passing of this Act, to be fixed by Order in Council, and according to descriptions and specifications to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be made by each company with the Government, and which the Government is empowered to make; and all the said subsidies authorized by this Act, respectively, to be paid out of the Consolidated Revenue Fund of Canada by instalments, on the completion of each section of not less than ten miles of railway, proportionate to the value of the portion so completed in comparison with the whole work undertaken, to be established by the report of the said Minister; Provided always, that the granting of such subsidies shall be subject to such conditions for securing such running powers

or traffic arrangements and other rights as will afford all reasonable facilities and equal mileage rates to all railways connecting with those so subsidized as the Governor in Council may determine."

By the special Act 46 Vic., cap. 26, 1883 *(Assented to 25th May, 1883)*:—

17. An advance authorized in favour of the "St. John Bridge and Railway Extension Company," to enable them to build a railway bridge across the River St. John, N.B., with railway connection with the Intercolonial, such advance to be secured by a mortgage on their entire property, not to exceed 80 per cent of the expenditure on the work, nor a total sum of..... $ 500,000

By the Act 47 Vic., cap. 8, 1884 *(Assented to 19th April, 1884)*:—

18. To the Government of the province of Quebec, in consideration of their having constructed the railway from Quebec to Ottawa, forming a connecting line between the Atlantic and Pacific coasts via the Intercolonial and Canadian Pacific Railways, and being as such a work of national and not merely provincial utility, a subsidy not exceeding $6,000 per mile for the portion between Quebec and Montreal, 159 miles, nor exceeding in the whole..... 954,000

19. And for the portion between Montreal and Ottawa, 120 miles, $12,000 per mile, nor exceeding in the whole.....1,440,000

20. For the construction of a line of railway connecting Montreal with the harbours of St. John and Halifax by the shortest and best practicable route, after the report of competent engineers, a subsidy not exceeding $170,000 per annum, for fifteen years, or a guarantee of a like sum for a like period as interest on bonds of the company undertaking the work.

21. For the construction of a line of railway from Oxford station, on the Intercolonial Railway, to Sydney or Louisburg, a subsidy not exceeding $30,000 per annum for fifteen years or a guarantee of a like sum for a like period as interest on the bonds of the company undertaking the work, in addition to the subsidies previously granted, and also a lease or transfer to such company of the Eastern Extension Railway, from New Glasgow to Canso, with its present equipment.

22. To the Quebec Central Railway Company, for a line of railway from Beauce Junction to the international boundary line, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 211,200

23. For the extension of the Canadian Pacific Railway, from its terminus at St. Martin's Junction, near Montreal, or some other point on the Canadian Pacific Railway, to the harbour of Quebec, in such manner as may be approved by the Governor in Council, a subsidy not exceeding $6,000 per mile, nor exceeding in the whole..... 960,000

24. To the Irondale, Bancroft and Ottawa Railway Company, for a line of railway from the Victoria branch of the Midland Railway to the village of Bancroft, in the township of Dungannon, county of Hastings, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 160,000

25. To the Pontiac Pacific Junction Railway, for a line of railway from Hull or Aylmer to Pembroke, provided the Ottawa River is crossed at some point not east of Lapasse, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 272,000

26. To the Gatineau Railway Company, for a line of railway from Kazuabazua to Le Désert, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 160,000

27. To the Napanee, Tamworth and Quebec Railway Company, for a line of railway from Tamworth to Bogart and Bridgewater, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 70,400

28. To the Montreal and Western Railway Company, for a line of railway from the end of the line subsidized in the now last session of Parliament, towards Le Désert, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole $160,000

29. To the Northern and Western Railway Company, for a line of railway from Fredericton to the Miramichi River, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole (instead of the subsidy proposed in 1883) 128,000

30. To the Erie and Huron Railway Company, for a line of railway from Wallaceburg to Sarnia, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 96,000

31. To the Ontario and Pacific Railway Company, for a line of railway from Cornwall to Perth, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 262,400

32. To the Kingston and Pembroke Railway Company, for a line of railway from Mississippi to Renfrew, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 48,000

33. To the Great Northern Railway Company, for that portion of their railway between St. Jérôme and New Glasgow, in the county of Terrebonne, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 32,000

34. For a line of railway and bridge between the Jacques Cartier Union Railway Junction with the Canadian Pacific Railway and St. Martin's Junction connecting the Jacques Cartier Union Railway with the North Shore Railway proper, a subsidy not exceeding in the whole 200,000

35. For a line of railway from Richibucto to St. Louis, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 22,400

36. For a line of railway from Hopewell to Alma, in the province of New Brunswick, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 51,200

37. For a line of railway from St. Andrew's to Lachute, in the county of Argenteuil, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 22,400

38. For a line of railway from the Grand Piles, on the River St. Maurice, to Lake Edward, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 217,600

39. For a line of railway from Annapolis to Digby, in the province of Nova Scotia, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 64,000

40. For a line of the Central Railway, from the head of Grand Lake to the Intercolonial Railway between Sussex and St. John, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 128,000

41. To the Caraquet Railway Company, for the extension of their line of railway from Caraquet to Shippegan Harbour, in the province of New Brunswick, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 76,800

42. For a branch of the Intercolonial Railway, from Metapediac eastward towards Paspebiac, twenty miles, in the province of Quebec, a sum not exceeding in the whole 300,000

43. For a branch of the Intercolonial Railway, from Derby Station to Indiantown, fourteen miles, a sum not exceeding in the whole 140,000

" The subsidies hereinbefore mentioned as to be granted to companies named for that purpose shall be granted to such companies, respectively ; the other subsidies shall be granted to such companies as shall be approved by the Governor in Council as having established, to his satisfaction, their ability to construct and complete the said railways respectively. All the lines for the construction of which subsidies are

granted shall be commenced within two years from the first day of July next and completed within a reasonable time, not to exceed four years, to be fixed by Order in Council, except the line mentioned in the fourth section of this Act,* which shall be commenced within one year, and shall also be constructed according to descriptions and specifications and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals and specified in an agreement to be made in each case by the company with the Government, and which the Government is hereby empowered to make; the location also of every such line of railway shall be subject to the approval of the Governor in Council; and all the said subsidies, respectively, shall be payable out of the Consolidated Revenue Fund of Canada, by instalments, on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister. The subsidies to the province of Quebec shall be capitalized, and the interest shall be payable at such time and in such manner as the Government of Canada shall agree upon with the Government of the said province. The two subsidies last mentioned in the list are for works to be constructed by the Government of Canada.

"Provided, always, that the granting of such subsidies to the companies mentioned, respectively, shall be subject to such conditions for securing such running powers or traffic arrangements and other rights as will afford all reasonable facilities and equal mileage rates to all railways connecting with those so subsidized, as the Governor in Council may determine."

By the special Act 47 Vic., cap. 6, 1884 *(Assented to 19th April, 1884)*:

44. Relating to an agreement with the province of British Columbia, authority was given, *inter alia*, for the grant of a subsidy to the "Esquimalt and Nanaimo Railway Company" in aid of the construction of a line of railway and telegraph between the points named; such subsidy to be in lands *en bloc* on Vancouver Island, the boundaries being fixed by the Act, and in money $750,000

By the Act 48-49 Vic., cap. 59, 1885 *(Assented to 20th July, 1885)*:

45. To the Ottawa, Waddington and New York Railway and Bridge Company, for a line of railway from Ottawa to Waddington, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 166,400

46. To the New Brunswick and Prince Edward Island Railway Company, for a line of railway from Sackville to the Straits of Northumberland, at or near Cape Tormentine, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 118,400

47. To the Montreal and Sorel Railway Company, for a line of railway from St. Lambert to Sorel, a subsidy not exceeding $1,600 per mile, nor exceeding in the whole 72,000

48. To the Brockville, Westport and Sault Ste. Marie Railway Company, for a line of railway from Brockville to Westport, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 128,000

49. To the Quebec and Lake St. John Railway Company, for a line of railway from its junction on the North Shore Railway to St. Raymond, upon condition of the company extending their road to a point 50 miles north of St. Raymond, a subsidy not exceeding $3,200 per mile nor exceeding in the whole 96,000

50. To the Northern and Western Railway Company, for a line of railway from the northern end of the 40 miles subsidized between Fredericton and the Miramichi River by 47 Victoria, chapter 8, to Boiestown, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 19,200

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* The extension of the Canadian Pacific Railway from its terminus at St. Martin's Junction, or some other point on the said railway to the harbour of Quebec.

51. To the Montreal and Champlain Junction Railway Company, for a line of railway from Brosseau's to Dundee, a subsidy not exceeding $500 per mile, nor exceeding in the whole $30,000

52. To the Thunder Bay Colonization Railway Company, for a line of railway from the Murillo station of the Canadian Pacific Railway to the east end of Whitefish Lake, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 92,000

53. To the Central Ontario Railway Company, for a line of railway from Coe Hill or Rathbun, to Bancroft, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 64,000

54. To the Belleville and North Hastings Railway Company, for a line of railway from the village of Madoc to the junction with the Central Ontario Railway at Eldorado, a subsidy not exceeding $1,500 per mile, nor exceeding in the whole 10,500

55. For a line of railway from Long Sault to the foot of Lake Temiscamingue, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 25,600

56. For a line of railway from a point on the Canada Southern Railway near Comber, to Lake Erie, at or near the village of Leamington, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole.... 44,800

57. To the Napanee, Tamworth and Quebec Railway Company, for a line of railway from Tamworth towards Bogart and Bridgewater, 16 miles, in lieu of the subsidy granted by 47 Vic., chap. 8, a subsidy of..... 70,000

58. To the Gatineau Railway Company, for a line of railway from Hull station towards Le Désert, a distance of 62 miles, in lieu of the subsidies granted by 46 Vic., chap. 25, and 47 Vic., chap. 8, a subsidy of.... 320,000

59. For a line of railway from the Grand Piles, on the River St. Maurice, to its junction with Lake St. John Railway, a distance of about 50 miles, in lieu of the subsidy granted by 47 Vic., chap. 8, for a line of railway from the Grand Piles, on the River St. Maurice, to Lake Edward; a subsidy of..... 217,600

60. To the Canada Atlantic Railway Company, for a line of railway from Valleyfield to a point one and a half miles west of Johnston's, a subsidy not exceeding $1,600 per mile, and from one and a half miles west of Johnston's to Lacolle; also from the present terminus at Ottawa, to the Chaudiere Falls, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000

61. For a line of railway from Indiantown via the Miramichi Valley, to its junction with the Northern and Western Railway at or near Boiestown, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole. 140,800

The subsidies hereinbefore mentioned as to be granted to companies named for that purpose shall be granted to such companies, respectively; the other subsidies shall be granted to such companies as shall be approved by the Governor in Council as having established to his satisfaction their ability to construct and complete the said railways, respectively. All the lines for the construction of which subsidies are granted shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years, to be fixed by Order in Council; and shall also be constructed according to descriptions, specifications and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be made in each case by the company with the Government, and which the Government is hereby empowered to make; the location, also, of every line of railway shall be subject to the approval of the Governor in Council; and all the said subsidies, respectively, shall be payable out of the Consolidated Revenue Fund of Canada, by instalments, on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister.

"Provided always, that the granting of such subsidies to the companies mentioned, respectively, shall be subject to such conditions for securing such running powers or traffic arrangements and other rights as will afford all reasonable facilities and equal mileage rates to all railways connected with those so subsidized, as the Governor in Council may determine."

By the Act 48-49 Vic., cap. 58, 1885 *(Assented to 20th July, 1885)*:—

62. For a railway from a point on the Intercolonial Railway at Rivière du Loup or Rivière Ouelle, in the province of Quebec, to Edmundston, in the province of New Brunswick, a subsidy not exceeding two thousand eight hundred dollars per mile for seventy-five miles, and six thousand dollars per mile for eight miles, nor exceeding in the whole two hundred and fifty-eight thousand dollars; the said subsidy to be in addition to the subsidy authorized to be granted in aid of the construction of the said railway by the Act forty-fifth Victoria, chapter fourteen, and constituting with the subsidy so authorized, a subsidy not exceeding in the whole four hundred and ninety-eight thousand dollars, and to be granted for the said railway upon the terms and conditions specified in the said Act, and payable out of the Consolidated Revenue Fund of Canada; and for the purpose of incorporating the persons undertaking the construction of the said railway and those who shall be associated with them in the undertaking, the Governor may grant to them, under such corporate name as he shall deem expedient, a charter conferring upon them the franchises, privileges and powers requisite for the said purposes, which shall be similar to such of the franchises, privileges and powers granted to railway companies during the present session as the Governor shall deem most useful or appropriate to the said undertaking; and such charter being published in the *Canada Gazette*, with any Order or Orders in Council relating to it, shall have force and effect as if it were an Act of the Parliament of Canada.

63. For a line of railway from the south bank of the St. Lawrence river, opposite or near Montreal, to the harbours of St. Andrew's, St. John and Halifax, via Sherbrooke, Moosehead Lake, Mattawamkeag, Harvey, Fredericton and Salisbury, a subsidy not exceeding eighty thousand dollars per annum for twenty years, forming in the whole, together with the subsidy authorized by the Act forty-seventh Victoria, chapter eight, for a line of railway connecting Montreal with the said harbours of St. John and Halifax by the shortest and best practicable route, which the line above described is found to be, a subsidy not exceeding two hundred and fifty thousand dollars per annum, the whole of which shall be paid in aid of the construction of such a line of railway for a period of twenty years, or a guarantee bond of a like sum for a like period as interest on the bonds of the company undertaking the work; the said subsidy to be so granted upon the terms and conditions of and payable out of the Consolidated Revenue Fund in the manner specified in the said last mentioned Act in respect of the subsidy thereby authorized in aid of the said line of railway.

64. The Governor in Council may grant a further subsidy as an aid towards procuring free access as hereinafter described for the trains and traffic of the Canadian Pacific Railway Company from St. Martin's Junction, near Montreal, or from some other point on their railway to be selected by the said company, to the harbour of Quebec, in such a manner as shall be approved by the Governor in Council, that is to say: an additional subsidy not exceeding three hundred and forty thousand dollars, constituting, together with the subsidy authorized by the said last mentioned Act, to aid in procuring the extension of

the Canadian Pacific Railway to Quebec, and the subsidy also thereby authorized to aid in constructing a line connecting the Canadian Pacific Railway at the Jacques Cartier Union Junction with the North Shore Railway proper (which subsidies shall be applicable to the said first mentioned purpose) a sum not exceeding in the whole the sum of one million five hundred thousand dollars, payable out of the Consolidated Revenue Fund of Canada.

The said Act further provided as follows in relation to this matter:—

"If it should be expedient so to do in order to facilitate such access, the Governor in Council may acquire the North Shore Railway, and may apply the said sum of one million five hundred thousand dollars, or any part thereof, in aid of such acquisition and upon such acquisition may transfer and convey or lease the said railway to the Canadian Pacific Railway Company, subject to such obligation as the Government shall have assumed in acquiring it."

By the Act 49 Vic., cap. 10, 1886 (*Assented to 2nd June, 1886*):—

65. For a railway from a point at or near Moncton, to Buctouche, in the province of New Brunswick, thirty miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 96,000

66. For a railway from Ingersoll via London to Chatham, in the province of Ontario, eighty miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 256,000

67. To the Northern and Western Railway Company, for ten miles of their railway, intervening between the termini of the portions of their railway for which subsidies are already granted, the one from Fredericton and the other from Indiantown, and an extension of two miles down to deep water at Chatham, in the province of New Brunswick, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole. 32,000

68. To the Caraquet Railway Company, for ten miles of their railway, from the end of the present subsidized portion at Lower Caraquet to Shippegan, in the province of New Brunswick, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 32,000

69. To the Lake Erie, Essex and Detroit River Railway Company, for thirty-seven miles of their railway, from Windsor to Leamington, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 118,400

70. To the Thunder Bay Colonization Railway Company, for fifty-six miles of their railway, from the end of the present subsidized section to a point near Crooked Lake, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 179,200

71. To the Parry Sound Colonization Railway Company, for forty miles of their railway, from the village of Parry Sound to the village of Sundridge, on the line of the Northern Pacific Junction Railway, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 128,000

72. For a railway from a point at or near New Glasgow or St. Lin, to or near to Montcalm, in the province of Quebec, eighteen miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 57,600

73. For a railway from Hereford to the International Railway, in the township of Eaton, in the province of Quebec, thirty-four miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole.. 108,800

74. For a railway from St. Félix to Lake Maskinongé, parish of St. Gabriel in the province of Quebec, ten miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 32,000

75. For a railway from Glenannan to Wingham, in the province of Ontario, five miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 16,000

76. For a railway from a point at or near the McCann Station, on the Intercolonial Railway, to the Joggins, onCumberland Basin, in the province of Nova Scotia, twelve miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 38,400

77. For a railway from L'Assomption to L'Epiphanie, in the province of Quebec, three miles and a half, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 11,200

78. To the Montreal and Western Railway Company, for seventy miles of their railway from St. Jérôme, north-westerly towards Désert, in the province of Quebec, a subsidy of $5,161 per mile, in lieu of the subsidies granted by 46 Vic., chap. 25, and 47 Vic., chap. 8, not exceeding in the whole..... 361,270

79. For a railway from St. Andrew's to the Canadian Pacific Railway at or at any point east of the town of Lachute, in the county of Argenteuil, in the province of Quebec, seven miles, in lieu of the subsidy granted by 47 Vic., chap. 8, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 22,400

80. To the Canada Atlantic Railway Company, for twelve miles of their railway from Clark's Island to Valleyfield, and from Lacolle, in the province of Quebec, to the international boundary, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 38,400

81. For a railway from Truro to Newport, in the province of Nova Scotia, forty-nine miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 156,800

82. To the Quebec and Lake St. John Railway Company, for ninety-five miles of their railway, from a point fifty miles north of St. Raymond to Lake St. John, in the province of Quebec, a subsidy not exceeding $1,961 per mile, nor exceeding in the whole (in addition to the subsidy granted by 45 Victoria, chapter 14, and 46 Victoria, chapter 25, of $3,200 per mile)..... 186,295

83. To the Cap Rouge and St. Lawrence Railway Company, for twelve miles of their railway from Lorette via Cap Rouge to Quebec, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 38,400

84. For the construction of wharfs and landing stages on the line of the railway from Long Sault to the foot of Lake Temiscamingue, a subsidy of..... 6,000

85. To the Gananoque, Perth and James Bay Railway Company, seventeen miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 54,400

86. For a railway from St. Eustache to St. Placide, county of Two Mountains, eighteen miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 57,600

87. For a railway from a point on the Intercolonial Railway through the Stewiacke Valley, on the line which will afford facilities of communication with the Iron Mines, Spring Side, Upper Stewiacke and Musquodoboit settlements, twenty-five miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 80,000

88. For a railway from Yamaska to the River St. Francis, in the province of Quebec, ten miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 32,000

89. For a railway from Perth Centre station, on the New Brunswick Railway, to a point near Plaister Rock Island, in the province of New Brunswick, twenty-eight miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 89,600

90. For a railway from Fredericton to the village of Prince William, in the province of New Brunswick, twenty-two miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 70,400

91. For a railway from a point on the Intercolonial Railway near Newcastle or via Douglastown to a point on the River Miramichi, opposite the town of Chatham, in the province of New Brunswick, six miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole. $19,200

92. For a railway from a point on the Canadian Pacific Railway to Eganville, in the province of Ontario, twenty-two miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 70,400

93. To the Belleville and North Hastings Railway Company, for seven miles of their railway, from the village of Madoc to the junction with the Central Ontario Railway at Eldorado, in the province of Ontario, a subsidy (in addition to the subsidy of $1,500 per mile granted by 48-49 Victoria, chapter 59), not exceeding $1,700 per mile, nor exceeding in the whole..... 11,900

94. To the Napanee, Tamworth and Quebec Railway Company, for eighteen miles of their railway from Tamworth to Tweed, in lieu of the subsidy granted by 48-49 Victoria, chapter 59, a subsidy of..... 70,000

95. To the Albert Railway Company, for their railway from Salisbury to Hopewell, in the province of New Brunswick, which is a feeder to the Intercolonial Railway, in the form of a loan, repayable at such time and secured in such manner as the Governor in Council determines, a subsidy of..... 15,000

"The subsidies hereinbefore mentioned as to be granted to the companies named for that purpose shall be granted to such companies respectively; the other subsidies shall be granted to such companies as shall be approved by the Governor in Council as having established, to his satisfaction, their ability to construct and complete the said railways respectively. All the lines for the construction of which subsidies have been granted shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years, to be fixed by Order in Council, and shall be so constructed according to descriptions and specifications and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in the agreement to be made in each case by the company to the Government, and which the Government is hereby empowered to make; the location, also, of every such line of railway shall be subject to the approval of the Governor in Council, and all the said subsidies, respectively, shall be payable out of the Consolidated Revenue Fund of Canada, by instalments on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister: Provided always, that the granting of such subsidies to the companies mentioned, respectively, shall be subject to such conditions for securing such running powers or traffic arrangements, and other rights, as will afford all reasonable facilities and equal mileage rates to all railways connecting with those so subsidized, as the Governor in Council may determine."

By section 2 of this Act authority was given for the grant of a charter by the Governor in Council for the purpose of constructing a railway from Long Sault to the foot of Lake Temiscamingue.

By the Act 50-51 Vic., cap. 24, 1887 *(Assented to 23rd June, 1887).*

96. To the St. Catharines and Niagara Railway Company, for twelve miles of their railway from the city of St. Catharines to the bridge over the Niagara River, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 38,400

97. To the Vaudreuil and Prescott Railway Company, for thirty miles of their railway from Vaudreuil towards Hawkesbury, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000

98. To the Richmond Hill Junction Railway Company, for five miles of their railway from Richmond Hill Junction, on the Northern Railway of Canada, to Richmond Hill village, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 16,000

99. To the Drummond County Railway Company, for thirty miles of their railway from Drummondville towards Nicolet, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000

100. To the Joggins Railway Company, for one and a quarter miles of their railway extending from the southern end of the portion subsidized by the Act 49 Victoria, chapter 10, to the wharfs, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 4,000

101. To the Moncton and Buctouche Railway Company, for two miles of their railway from the west end of the portion subsidized by the Act 49 Victoria, chapter 10, to Moncton, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 6,400

102. To the Beauharnois Junction Railway Company, for thirty miles of their railway from St. Martin's towards St. Anicet, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000

103. To the Harvey Branch Railway Company, for three miles of their railway from the southern terminus of the Albert Railway to Harvey Bank, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 9,600

104. To the Brantford, Waterloo and Lake Erie Railway Company, for eighteen miles of their railway from the town of Brantford to the village of Hagarsville or the village of Waterford, or some intermediate point on the Canada Southern Railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 57,600

105. To the Guelph Junction Railway Company, for sixteen miles of their railway from its junction with the Canadian Pacific Railway to the town of Guelph, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 51,200

106. To the Massawippi Railway Company, for ten miles of their railway from a point on the Atlantic and North-western Railway near the village of Magog, to Ayer's Flat station, on the Massawippi Valley Railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 32,000

107. To the Napanee, Tamworth and Quebec Railway Company, for four miles of their railway from the north end of the section subsidized by the Act passed in the session held in the forty-eighth and forty-ninth years of Her Majesty's reign, chapter 59, to Tweed, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 12,800

108. To the Dominion Lime Company, for seven miles of their railway from a point on the Quebec Central Railway, in the township of Dudswell, to the Dudswell Lime Company's quarries, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 22,400

109. To the South Norfolk Railway Company, for seventeen miles of their railway from Port Rowan to the town of Simcoe, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 54,400

110. To the Jacques Cartier Union Railway Company, extending and completing their railway, a subsidy of..... 20,000

111. For a line of railway from Mount Forest to Walkerton, twenty-four miles in length, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 76,800

112. To the Oshawa Railway and Navigation Company, for seven miles of their railway from Port Oshawa towards Raglan, a subsidy not exceeding $3,200 per mile. nor exceeding in the whole..... 22,400

113. To the Saguenay and Lake St. John Railway Company, for thirty miles of their railway from Lake St. John towards Chicoutimi, or from Chicoutimi towards Lake St. John, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000

114. To the Great Eastern Railway Company, for thirty miles of their railway from the River St. Francis to the Arthabaska Railway, at St. Grégoire station, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $96,000

115. To the Ontario and Pacific Railway Company, for six miles of their railway from the northern end of the portion subsidized by the Act 47 Victoria, chapter 8, to the town of Perth, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 19,200

116. To the Caraquet Railway Company, for seven miles of their railway from Lower Caraquet to Shippegan, in lieu of the subsidy granted by the Act 49 Victoria, chapter 10, a subsidy not exceeding in the whole.. 32,000

117. To the St. Lawrence and Lower Laurentian and Saguenay Railway Company, for the section of this railway from Grand Piles, on the St. Maurice River, to its junction with the Quebec and Lake St. John Railway, in lieu of the subsidy granted by the Act passed in the session held in the forty-eighth and forty-ninth years of Her Majesty's reign, chapter 59, for a line of railway from Grand Piles, on the St. Maurice River, to its junction with the Lake St. John Railway, a distance of about fifty miles, a subsidy of..... 217,600

118. To the St. John Valley and River du Loup Railway Company, for twenty-two miles of their railway from the village of Prince William towards the town of Woodstock, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 70,400

119. To the Lake Temiscamingue Railway Company, for four short sections of railway, in all about two miles in length, to overcome the rapids of the Ottawa River, known as "La Mi-Charge," "La Cave," "Les "Erables," and "La Montagne," and for the construction of wharfs and landing stages at these rapids, to connect the Canadian Pacific Railway at Mattawa with Lake Temiscamingue by steamboats, railways and other works (in lieu of a portion two miles in length, out of the eight miles of railway subsidized by the Act passed in the session held in the forty-eighth and forty-ninth years of Her Majesty's reign, chapter 59, under which about six miles of railway have already been built from the foot of Long Sault proper to the foot of Lake Temiscamingue, and in lieu also of the subsidy granted by the Act 49 Victoria, chapter 10), a subsidy of..... 12,400

120. To the Carillon and Grenville Railway Company, for twelve miles of their railway from St. Eustache to Sault au Récollet, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 38,400

121. To the Minudie Branch Railway Company, for five and a half miles of their railway from its junction with the Joggins Railway, near the River Hébert railway bridge, to the village of Minudie, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 17,600

122. To the Lake Temiscamingue Colonization and Railway Company, for ten and a half miles of their railway from the Long Sault to Lake Kippewa, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 33,600

123. To the Leamington and St. Clair Railway Company, for two miles of their railway from the north end of the section subsidized by the Act passed in the session held in the forty eighth and forty-ninth years of Her Majesty's reign, chapter 59, to the village of Comber, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole. 6,400

124. To the Cumberland Railway and Coal Company for fourteen miles of their railway from a point on the Spring Hill and Parrsboro' Railway, near Spring Hill, to a point on the railway between Oxford and New Glasgow, near Oxford village, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 44,800

125. To the Montreal and Champlain Junction Railway Company, a subsidy of..... $ 64,000

126. To the Quebec and Lake St. John Railway Company, for nine miles of their railway, the distance which the previous subsidies granted are short of covering from the city of Quebec to Lake St. John, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 28,800

127. To the Temiscouata Railway Company, for thirty miles of a branch of their railway from Edmundston towards the St. Francis River, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole.. 96,000

128. To the Cornwallis Valley Railway Company, for thirteen miles of their railway from Kentville to Kingsport, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 41,600

129. To the Nova Scotia Central Railway Company, for thirty-four miles of their railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 108,800

130. To the Tobique Valley Railway Company, for fourteen miles of their railway from Perth Centre station towards Plaister Rock Island, in lieu of the subsidy granted by the Act 49 Victoria, chapter 10, for a railway from Perth Centre station, on the New Brunswick Railway, to a point near Plaister Rock Island, a subsidy of..... 89,600

131. For a railway from Woodstock towards Centreville, twenty miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole.. 64,000

132. For a railway bridge over the St. Lawrence River, at Coteau Landing on the line of the Canada Atlantic Railway, a subsidy of fifteen per cent on the value of the structure, not to exceed..... 180,000

133. To the Lake Erie, Essex and Detroit River Railway Company, for twenty-seven miles of their railway, in lieu of the subsidy granted by the Act 49 Victoria, chapter 10, a subsidy not exceeding..... 118,400

"For the purpose of granting corporate powers to persons or companies undertaking the construction of railways or parts of railways, mentioned in the next preceding section, for the construction of which no corporate powers exist at the time of the passing of this Act, the Governor in Council may grant to them, under such corporate name as he shall deem expedient, a charter conferring upon them the franchises, privileges and powers requisite for the said purposes, as the Governor in Council shall deem most useful or appropriate to the said undertaking; and such charter being published in the *Canada Gazette*, with any Order or Orders in Council relating to it, shall have force and effect as if it were an Act of the Parliament of Canada.

"The subsidies hereinbefore mentioned as to be granted to companies named for that purpose shall be granted to such companies respectively; the other subsidies, including subsidies granted for railways over a line extending beyond a point to which any company hereinbefore mentioned by name is authorized to construct their railway, shall be granted to such companies as shall be approved by the Governor in Council, as having established, to his satisfaction, their ability to construct and complete the said railways respectively; all the lines for the construction of which subsidies are granted shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years, to be fixed by Order in Council; and shall also be constructed according to descriptions and specifications and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be be made in each case by the company with the Government, and which the Government is hereby empowered to make; the location, also, of every such line of railway shall be subject to the approval of the Governor in Council; and all the said subsidies respectively shall be payable out of the Consolidated Revenue Fund of Canada, by instalments, on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister, or upon completion of the work subsidized, except as regards the subsidy for the bridge over the

St Lawrence River, upon which shall be paid fifteen per cent of the value of work done on monthly progress estimates, certified by the Chief Engineer, and upon the approval of the Minister of Railways and Canals.

"The granting of such subsidies to the companies mentioned, respectively, shall be subject to such conditions for securing such running powers or traffic arrangements and other rights as will afford all reasonable facilities and equal mileage rates to all railways connecting with those so subsidized, as the Governor in Council determines.

"Notwithstanding anything contained in the Act forty-fifth Victoria, chapter fourteen, or in the Act forty-sixth Victoria, chapter twenty-five, the balances of the sums granted for a railway from St. Raymond to Lake St. John and to the Quebec and Lake St. John Railway Company by the said Acts respectively, which have not yet been paid by the Government, may be paid at any time within one year from the passing of this Act, subject to the conditions in the said Act contained."

By the Act 51 Vic., cap. 3, 1888 (*Assented to 22nd May, 1888*):—

134. To the Ottawa and Parry Sound Railway Company, for 22 miles of their railway from a point on the Canadian Pacific Railway to Eganville, in lieu of the subsidy granted by 49 Victoria, chapter 10, for a railway from a point on the Canadian Pacific Railway to Eganville, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 70,400 00

135. To the Nova Scotia Central Railway Company, for 46 miles of their railway, in the province of Nova Scotia, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 147,200 00

136. To the Montreal and Champlain Junction Railway Company, for 3 miles of their railway from the end of the present subsidized section, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 9,600 00

137. To the Massawippi Junction Railway Company, for their railway from a point on the Atlantic and North-west Railway, near the village of Magog, to Ayer's Flat station, on the Massawippi Valley Railway, in lieu of the subsidy granted by 50-51 Victoria, chapter 24, a subsidy of..... 32,000 00

138. To the Pontiac Pacific Junction Railway Company, for bridging the several channels of the Ottawa River at Culbute and west thereof, a subsidy of $31,500, to be paid out monthly as the work progresses, upon the certificate of the Chief Engineer of Government railways, in the proportion which the value of the work executed bears to the value of the whole work undertaken, and for three miles of their railway extending from a point three miles east of Pembroke to Pembroke, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole $9,600, provided that the entire work subsidized upon this railway shall be completed within four years from the passing of this Act, the subsidy granted by this Act not to exceed in the whole..... 41,100 00

139. To the Port Arthur, Duluth and Western Railway Company, for 84¾ miles of their railway from Port Arthur towards Gun Flint Lake, in lieu of the subsidies granted by 48-49 Victoria, chapter 59, and 49 Victoria, chapter 10, for the construction of a railway from Murillo Station to Crooked Lake, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 271,200 00

140. To the Quebec and Lake St. John Railway Company, for 30 miles of their railway from Lake St. John towards Chicoutimi, or from Chicoutimi towards Lake St. John, being a transfer made at the request of the Saguenay and Lake St. John Railway Company of the subsidy granted to them by 50-51 Victoria, chapter 24, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 96,000 00

141. To the Temiscouata Railway Company, for 20 miles of their branch railway from Edmundston towards the St. Francis River, in the province of Quebec, in lieu of the subsidy granted by 50-51 Victoria, chapter 24, a subsidy of..... $100,000 00

142. To the Quebec Central Railway Company, for the construction and completion of a line of railway from St. Francis Station to a point on the Atlantic and North-west Railway near Moose River, 90 miles, in lieu of the balance of the subsidy, unearned, granted by 47 Victoria, chapter 8, a subsidy not exceeding $21,191.54 per annum for twenty years, or a guarantee of a like sum for a like period as interest on the bonds of the company, such annual subsidy for twenty years representing a grant in cash of 288,000 00

143. To the Central Railway Company of New Brunswick, a grant as subsidy (the road to be first laid with new steel rails weighing not less than 56 pounds per lineal yard, and after an Order in Council has been passed authorizing their transfer to the company) of 4,052 tons of used iron rails and fastenings, loaned to the St. Martin's and Upham Railway Company, now forming part of the Central Railway, which rails and fastenings stand in the Public Ac ounts as an asset for..... ..... 83,612 54

144. To the Elgin, Petitcodiac and Havelock Railway Company of New Brunswick, a grant as subsidy (the road to be first laid with new steel rails weighing not less than 56 pounds per lineal yard, and after an Order in Council has been passed authorizing their transfer to the company) of 2,201 tons of used iron rails and fastenings loaned to the Elgin Branch Railway, now forming part of the Elgin, Petitcodiac and Havelock Railway, which rails and fastenings stand in the Public Accounts as an asset for 44,252 82

145. To the Kent Northern Railway Company of New Brunswick, a grant as subsidy (the road to be first laid with new steel rails weighing not less than 56 pounds per lineal yard, and after an Order in Council has been passed authorizing their transfer to the company) of 2,549 tons of used iron rails and fastenings loaned to the company, which rails and fastenings stand in the Public Accounts as an asset for..... ..... 58,334 27

146. To the Halifax Cotton Company of Nova Scotia, a grant as subsidy (the road to be first laid with new steel rails weighing not less than 56 pounds per lineal yard, and after an Order in Council has been passed authorizing their transfer to the company) of 233 tons of used iron rails and fastenings loaned to the company, which rails and fastenings stand in the Public Accounts as an asset for..... 4,335 00

147. To the Steel Company of Canada, in Nova Scotia, a grant as subsidy (the road to be first laid with new steel rails weighing not less than 56 pounds per lineal yard, and after an Order in Council has been passed authorizing their transfer to the company of 597 tons of used iron rails and fastenings loaned to the company, which rails and fastenings stand in the Public Accounts as an asset for..... 11,964 66

148. To the Albert Railway Company of New Brunswick, a grant as a subsidy (the section of road to be first laid with new steel rails weighing not less than 56 pounds per lineal yard, and after an Order in Council has been passed authorizing their transfer to the company) of 726 tons of used iron rails and fastenings loaned to the company, which rails and fastenings stand in the Public Accounts as an asset for..... 14,665 45

149. To the Chatham Branch Railway of New Brunswick, a grant as subsidy (the road to be first laid with new steel rails weighing not less than 56 pounds per lineal yard, and after an Order in Council has been passed authorizing their transfer to the company) of 958 tons of used iron rails and fastenings loaned to the company, which rails and fastenings stand in the Public Accounts as an asset for..... $24,439 84

" All the lines, for the construction of which subsidies are granted, shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years, to be fixed by Order in Council, and shall also be constructed according to descriptions and specifications, and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be made in each case by the company with the Government, and which the Government is hereby empowered to make ; the location also of every such line of railway shall be subject to the approval of the Governor in Council ; and also the said subsidies respectively, payable in cash, shall be payable out of the Consolidated Revenue Fund of Canada by instalments, on the completion to the satisfaction of the Minister of Railways and Canals of each section of the railway of not less than 10 miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister, or upon completion of the work subsidized."

By the Act 52 Vic., chap. 3, 1889. *(Assented to 2nd May, 1889)* :—

150. To the Ontario and Pacific Railway Company, for a line of railway from Cornwall to Ottawa, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $172,400 00

151. To the Ottawa and Gatineau Railway Company, for a line of railway from Hull station towards Le Désert, a distance of sixty-two miles, a subsidy not exceeding in the whole..... 320,000 00

152. To the Cap Rouge and St. Lawrence Railway Company, for twelve miles of their railway, from Lorette via Cap Rouge to Quebec, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 38,400 00

153. To the Parry Sound Colonization Railway Company, for forty miles of their railway, from the village of Parry Sound to the village of Sundridge, or some other point on the line of the Northern and Pacific Junction Railway, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 128,000 00

154. For a railway from St. Andrew's to the Canadian Pacific Railway, at or at any point east of the town of Lachute, in the county of Argenteuil, in the province of Quebec, seven miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 22,400 00

155. For a railway from Truro, or a point between Truro and Stewiacke, to Newport or to Windsor, in the province of Nova Scotia, forty-nine miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 156,800 00

156. For a line of the Central Railway from the head of Grand Lake to the Intercolonial Railway, in the province of New Brunswick, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 128,000 00

157. To the Albert Southern Railway Company, the balance remaining unpaid of the subsidy granted by the Act 47th Victoria, chapter 8, not exceeding in the whole 31,771 43

158. To the Baie des Chaleurs Railway Company, the balance remaining unpaid of the subsidy mentioned in the Act 49th Victoria, chapter 17, not exceeding in the whole 244,500 00

159. To the Irondale, Bancroft and Ottawa Railway Company, for a line of railway from the Victoria Branch of the Midland Railway to the village of Bancroft, in the county of Hastings, the balance remaining unpaid of the subsidy granted by the Act 47th Victoria, chapter 8, not exceeding in the whole..... $145,000 00

160. To the Northern and Pacific Junction Railway Company, for a railway from Gravenhurst to Callander, the balance remaining unpaid of the subsidies granted by the Act 45th Victoria, chapter 14, and 46th Victoria, chapter 25, not exceeding in the whole.. 35,000 00

161. For a railway from some point on the Joggins Railway, near the Hébert River, to Young's Mills, in the province of Nova Scotia, a distance of five miles, a subsidy not exceeding $3,200 per mile, and not exceeding in the whole..... 16,000 00

162. To the St. Clair Frontier Tunnel Company, for the construction of a tunnel under the St. Clair River, from a point at or near Sarnia, to a point at or near Port Huron, a subsidy not exceeding in the whole..... 375,000 00

163. To the Pontiac and Renfrew Railway Company, for six miles of their railway from the north bank of the Ottawa River, opposite Braeside, or from Bristol Iron Mines, to the Pontiac Pacific Junction Railway, near the Quyon River, in the province of Quebec, a subsidy not exceeding $3,200 per mile, and not exceeding in the whole..... 19,200 00

164. To the Quebec, Montmorency and Charlevoix Railway Company, for thirty miles of their railway, from the east bank of the St. Charles River, to or near to Cap Tourmente, in the province of Quebec, a subsidy not exceeding $3,200 per mile, and not exceeding in the whole..... 96,000 00

165. To the Fredericton and St. Mary's Bridge Company, for a bridge over the St. John River, at Fredericton, in the province of New Brunswick, a subsidy not exceeding in the whole..... 30,000 00

166. To the Napanee, Tamworth and Quebec Railway Company, for seven miles of their railway, from a point at or near Yarker to a point at or near Harrowsmith, and to a company for three miles of railway from a point at or near Harrowsmith to a point at or near Sydenham, a subsidy not exceeding $3,200 per mile, and not exceeding in the whole..... 32,000 00

167. For a railway from a point near Sicamous, on the Canadian Pacific Railway, to a point on Lake Okanagan for fifty-one miles of such railway, a subsidy not exceeding $3,200 per mile, and not exceeding in the whole..... 163,200 00

168. To the Cornwallis Valley Railway Company, for one mile of their railway, from the end of the line subsidized by the Act 50-51 Victoria, chapter 24, to Kingsport, in the province of Nova Scotia, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 3,200 00

169. To the Lake Témiscamingue Colonization and Railway Company, for fifteen miles of their railway, from Mattawa station on the Canadian Pacific Railway, towards the Long Sault, or from the Long Sault towards the said Mattawa station, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 48,000 00

170. To the Maskinongé and Nipissing Railway Company, for fifteen miles of their railway, from a point on the Canadian Pacific Railway at or near Maskinongé or Louiseville, towards the parish of Saint-Michel des Saints, on the River Mattawin, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 48,000 00

171. To the Kingston, Smith's Falls and Ottawa Railway Company, for twenty miles of their railway, from the city of Kingston towards Smith's Falls, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 64,000 00

172. To the South Ontario Pacific Railway Company, for forty-nine and one-half miles of their railway, from Woodstock to Hamilton, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 158,400 00

173. For a railway from St. Césaire to St. Paul d'Abbotsford, in the province of Quebec, five miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 16,000 00

174. To the Great Eastern Railway Company, for twenty miles of their railway, from the east end of the line subsidized by the Act 50-51 Victoria, chapter 24, at St. Grégoire, towards the Chaudière Junction station on the Intercolonial Railway, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 64,000 00

175. To the Drummond County Railway Company, for four and one-half miles of their railway, from the end of the line subsidized by the Act 50-51 Victoria, chapter 24, to Ball's Wharf, on the St. Lawrence River, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 14,400 00

176. To the St. Catharines and Niagara Central Railway Company, for twenty miles of their railway, from the end of the line subsidized by the Act 50-51 Victoria, chapter 24, at St. Catharines, towards the city of Hamilton, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 64,000 00

177. To the Quebec and Lake St. John Railway Company, for twenty miles of their railway, from the end of the section of thirty miles from Lake St. John towards Chicoutimi, subsidized by the Act 51 Victoria, chapter 3, towards Chicoutimi, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 64,000 00

178. To the Grand Trunk, Georgian Bay and Lake Erie Railway Company, for fifteen miles of their railway, from the village of Tara or some point between Tara and Hepworth, to the town of Owen Sound, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 48,000 00

179. To the Hereford Railway Company, for fifteen miles of their railway, from Cookshire to a junction with the Quebec Central Railway at Dudswell, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 48,000 00

180. To the Massawippi Junction Railway Company, for fifteen miles of their railway, from Ayer's Flat to Coaticook, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 48,000 00

181. To the Brockville, Westport and Sault Ste. Marie Railway Company, for twenty miles of their railway, from a point at or near Newboro', towards Palmer's Rapids, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole. 64,000 00

182. To the Thousand Islands Railway Company, for four miles of their railway, from a point near the St. Lawrence River, in Gananoque village, to Gananoque Junction of the Grand Trunk Railway, and for thirteen miles of their railway, from Gananoque Junction of the Grand Trunk Railway to a junction with the Brockville, Westport and Sault Ste. Marie Railway, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 54,400 00

183. For a railway from Cape Tourmente towards Murray Bay, twenty miles, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $64,000 00

184. To the Amherstburg, Lake Shore and Blenheim Railway Company, for twenty miles of their railway, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 64,000 00

"So much of the subsidy of three thousand two hundred dollars per mile, which under the provisions of the Act forty-ninth Victoria, chapter seventeen, and of this Act, may be paid to the Baie des Chaleurs Railway Company in respect of the thirty miles of their railway, from the seventieth to the hundredth mile, eastward from Metapediac, shall be applicable to the section of the said railway, comprised between the fortieth and the seventieth mile thereof, eastward from Metapediac, instead of to the said first mentioned section of thirty miles, making six thousand four hundred dollars per mile applicable to the secondly mentioned section of thirty miles; but the foregoing provision shall be subject to the condition that the said company undertake to complete the thirty miles of their railway from the seventieth to the hundredth mile eastward from Metapediac within a reasonable time, not to exceed four years, to be fixed by Order in Council, and without any further subsidy from the Government of Canada, and that they deposit with the Minister of Railways and Canals, as security to the Crown that they will well and truly carry out their undertaking, their bonds to the amount of two hundred thousand dollars.

"The subsidies hereinbefore mentioned as to be granted to companies named for that purpose, shall be granted to such companies respectively; all the lines for the construction of which subsidies are granted, unless they are already commenced, shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years, to be fixed by Order in Council, and shall also be constructed according to descriptions and specifications and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be made in each case by the company with the Government, and which the Government is hereby empowered to make; the location, also, of every such line of railway shall be subject to the approval of the Governor in Council; and all the said subsidies, respectively, shall be payable out of the Consolidated Revenue Fund of Canada, by instalments, on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister, or upon the completion of the work subsidized, except as respects the tunnel under the St. Clair River, in which case there shall be paid fifteen per cent of the value of work done on monthly progress estimates, certified by the Chief Engineer, and upon the approval of the Minister of Railways and Canals.

"The granting of such subsidies, respectively, shall be subject to such conditions for securing such running powers or traffic arrangements and other rights, as will afford all reasonable facilities and equal mileage rates to all railways connecting with those so subsidized, as the Governor in Council determines.

"And for the removal of doubts it is hereby declared and enacted that the provision in the Act passed in the fifty-first year of Her Majesty's reign, and chaptered three, relating to the Pontiac Pacific Junction Railway Company, extended and extends the several subsidies in aid of the said company for four years from the passing of the said Act, that is to say, from the twenty-second day of May, one thousand eight hundred and eighty-eight."

By the Special Act, 52 Vic., cap. 5, 1889 *(Assented to 2nd May, 1889)*:—

185. In order to enable the Qu'Appelle, Long Lake and Saskatchewan Railroad and Steamboat Company to complete their railway from Regina to some point on the South Saskatchewan River at or near Saskatoon, and thence northward to Prince Albert, the Governor in Council may enter into a contract with such company for the transport of men, supplies, materials and mails,

for twenty years, and may pay for such services during the said term, eighty thousand dollars per annum in manner following, that is to say :—the sum of fifty thousand dollars to be paid annually on the construction of the railway to a point at or near Saskatoon, such payment to be computed from the date of the completion of the railway to such point ; and the remaining thirty thousand dollars annually on the extension of the railway to Prince Albert, such payment to be computed from the date of such last mentioned completion : Provided that if the second portion of the said railway is not built and operated to Prince Albert within two years after the completion of the railway to the South Saskatchewan as aforesaid, the payment of fifty thousand dollars shall cease until the whole railway is finished to Prince Albert.

By the Act 53 Vic., cap. 2, 1890 *(Assented to 16th May, 1890)* :—

186. To the Montreal and Ottawa Railway Company, for thirty miles of their railway, from the western end of the thirty-six miles subsidized by the Act 50-51 Victoria, chapter 24, towards Ottawa, a subsidy not exceeding $3,200 per mile, and not exceeding in the whole..... $ 96,000

187. To the Waterloo Junction Railway Company, for eleven miles of their railway, from Waterloo to Elmira, a subsidy not exceeding $3,200 per mile, and not exceeding in the whole..... 35,200

188. To the Northern and Pacific Junction Railway Company, for a railway from Gravenhurst to Callander, the balance remaining unpaid of the subsidies granted by the Acts 45 Victoria, chapter 14, and 46 Victoria, chapter 25, not exceeding in the whole... 600

189. For a railway from Woodstock via London to Chatham, in the province of Ontario, thirty miles in lieu of the subsidy granted by the Act 49 Victoria, chapter 10, for a railway from Ingersoll via London to Chatham, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 256,000

190. To the St. Catharines and Niagara Railway Company, for fourteen miles of their railway, from the end of the twenty miles subsidized by the Act 52 Victoria, chapter 3, to Hamilton, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole. 44,800

191. To a railway from Ottawa to Morrisburg, fifty-two miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 166,400

192. To the Erie and Huron Railway Company, for twenty-two miles of their railway from Petrolea via Oil Springs to Dresden, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole. 70,400

193. To the Brockville, Westport and Sault Ste. Marie Railway Company, for a railway from Brockville to Westport, the balance remaining unpaid of the subsidy granted by the Act 48-49 Victoria, chapter 59, not exceeding in the whole..... 83,000

194. To the Manitoulin and North Shore Railway Company, for thirty miles of their railway from Little Current to the Algoma Branch of the Canadian Pacific Railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000

195. To the Port Arthur, Duluth and Western Railway Company, for five miles of their railway, being a branch of the main line of railway to the Kakabeka Falls, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 16,000

196. To the Lake Erie and Detroit River Railway Company, for fifty miles of their railway, on a line to be fixed by the Governor in Council, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 160,000

197. To the Lindsay, Bobcaygeon and Pontypool Railway Company, for sixteen miles of their railway, from Bobcaygeon to the Midland Railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 51,200

198. To the Kingston, Smith's Falls and Ottawa Railway Company, for thirty-six miles of their Railway, from the north-east end of the twenty miles subsidized by the Act 52 Victoria, chapter 3, to Smith's Falls, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 115,200

199. To the Ottawa and Parry Sound Railway Company, for thirty miles of their railway, from Eganville to Barry's Bay, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000

200. To the Belleville and Lake Nipissing Railway Company, for thirty miles of their railway, from Belleville to Tweed and thence to Bridgewater, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000

201. To the Cobourg, Northumberland and Pacific Railway Company, for thirty miles of their railway from Cobourg to the Ontario and Quebec Railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000

202. To the St. Stephen and Milltown Railway Company, for three and a half miles of their railway, from the town of St. Stephen to the town of Milltown, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 11,200

203. To the Woodstock and Centreville Railway Company, for six miles of their railway, from the western end of the twenty miles subsidized by the Act 50-51 Vic., chap. 24, to the International boundary between the province of New Brunswick and the state of Maine, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 19,200

204. For a railway from a point at or near Fredericton, via Oromocto and Gagetown, to a point on the New Brunswick Railway west of Westfield station, for thirty miles thereof, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000

205. To the Central Railway Company of New Brunswick, for four and a half miles of their railway, the distance which the previous subsidy granted is short of covering, from the head of Grand Lake to the Intercolonial Railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 14,400

206. To the Montreal and Western Railway Company, for seventy miles of their railway, from St. Jérôme, north-westerly towards Désert, in the province of Quebec, in lieu of the subsidy granted by the Act 49 Vic., chap. 10, a subsidy not exceeding $5,161 per mile, nor exceeding in the whole..... 361,270

"Provided, that the subsidy hereby granted to the Montreal and Western Company may be paid by instalments on the completion of each section of the railway as follows, that is to say :—

SECTIONS.	Approximate length in miles.
St. Jérôme to Shawbridge	8
Shawbridge to St. Sauveur	4
St. Sauveur to Ste. Adèle	6
Ste. Adèle to Lac à la Fourche	6
Lac à la Fourche to Ste. Agathe	6½
Ste. Agathe to St. Faustin	14
St. Faustin to St. Jovite	7½
St. Jovite to Summit Lake	8
Summit Lake to La Chute aux Iroquois	7
La Chute aux Iroquois towards Désert	3

"Such instalments to be proportionate to the value of the portions so completed in comparison with that of the whole work undertaken, to be established as aforesaid."

207. For seventy-five miles of the railway from Shelburne, in the county of Shelburne, and from Liverpool, in the county of Queen's towards Annapolis, in the province of Nova Scotia, to be so contracted for as to secure the construction to both Shelburne and Liverpool, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 240,000

208. To the Inverness and Richmond Railway Company, for fifty miles of their railway from Port Hawkesbury to Broadcove, a subsidy not exceeding $1,000 per mile, nor exceeding in the whole..... 50,000

209. To the International Railway Company, for a railway from Sherbrooke to the international boundary, the balance remaining unpaid of the subsidy granted by the Act 46 Vic., chapter 25, not exceeding in the whole..... 3,840

210. For completing the Montreal and Sorel Railway from St. Lambert to Sorel..... 40,000

211. To the Pontiac Pacific Junction Railway Company, for seven and a half miles of their railway, from Hull to Aylmer, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 24,000

212. To the Montreal and Lake Maskinongé Railway Company, for three and a half miles of their railway, the distance which the subsidy granted by the Act 49 Vic., chapter 10, is short of covering from St. Félix to Lake Maskinongé, in the parish of St. Gabriel, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 10,200

213. To the Great Eastern Railway Company, for a bridge over the Nicolet River, and also a bridge on the St. Francis River, a subsidy of 15 per cent on the value of the structure, not to exceed..... 37,500

214. To the Drummond County Railway Company, for twenty-four miles of their railway, from Drummondville to Ste. Rosalie, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 76,800

215. To the Great Northern Railway Company, for fifteen miles of their railway, from, at or near Montcalm to the Canadian Pacific Railway, between Joliette and St. Félix de Valois, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 48,000

216. To the Lake Temiscamingue Colonization Railway Company, for twenty miles of their railway, from the northern end of the fifteen miles subsidized by the Act 52 Vic., chapter 3, to the Long Sault, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 64,000

217. To the Maskinongé and Nipissing Railway Company, for fifteen miles of their railway, from the northern end of the 15 miles subsidized by the Act 52 Victoria, chapter 3, towards the parish of St. Michel des Saints, on the River Mattawa, in the province of Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 48,000

218. To the St. Lawrence and Adirondack Railway Company, for eighteen miles of their railway, from Valleyfield to Huntingdon, on the Montreal and Champlain Junction Railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 57,600

219. To the Quebec Central Railway Company, for ninety miles of their railway, from St. Francis Station, on the Quebec Central Railway, to a point on the Atlantic and North-western Railway,

near Moose River, or from a point on the Quebec Central Railway between the Chaudière River and Tring Station, to a point on the International Railway at or near Lake Megantic, in lieu of the subsidy granted by the Act 51 Victoria, chapter 3, a subsidy not exceeding $21,191.54 per annum for twenty years, or a guarantee of a like sum for a like period, as interest on the bonds of the company, such annual subsidy for twenty years representing a grant in cash of..... $288,000

220. To the Quebec and Lake St. John Railway Company, for a railway bridge over the St. Charles River, to give access to the city of Quebec, a subsidy not to exceed in the whole $30,000; also for twelve miles of their railway from Lorette via Charlesbourg to Quebec, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole $38,400..... 68,400

221. For a railway from Summerside to Richmond Bay, in the province of Prince Edward Island, three miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 9,600

222. To the Columbia and Kootenay Railway Company, for thirty-five miles of their railway, from the outlet of Kootenay Lake to a point on the Columbia River as near as practicable to the junction of the Kootenay and Columbia Rivers, a subsidy not exceeding $3,200 per mile, nor to exceed in the whole..... 112,000

223. For a railway from a point on the Intercolonial Railway through the Stewiacke Valley on a line which will afford facilities of communication with the Iron Mines, Springside, Upper Stewiacke and Musquodoboit settlements, twenty-five miles, in lieu of the subsidy granted by the Act 49 Victoria, chapter 10, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 80,000

224. For a railway from Fredericton to the village of Prince William in the province of New Brunswick, twenty-two miles, in lieu of the subsidy granted by the Act 49 Victoria, chapter 10, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 70,400

225. To the St. John Valley and Rivière du Loup Railway Company, for twenty-two miles of their railway from the village of Prince William towards the town of Woodstock, in lieu of the subsidy granted by the Act 50-51 Victoria, chapter 24, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 70,400

226. To the Témiscouata Railway Company, for sixteen miles of their railway, from the west end of the twenty miles of their branch railway from Edmundston, subsidized by the Act 51 Victoria, chapter 3, towards the St. Francis River, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 51,200

227. For a railway from the north end of the fourteen miles for which a subsidy was granted by the Act 50 and 51 Victoria, chapter 24, to the Tobique Valley Railway Company, from Perth Centre towards Plaister Rock Island, eleven miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 35,200

228. To the Orford Mountain Railway Company, for thirty-one miles of their railway, between Eastman and Kingsbury, a subsidy not exceeding $3,200 per mile, nor exceedingin the whole 99,200

229. For a railway from Lachine Bank, on a line of the Grand Trunk Railway, to a point at or near Rivière des Prairies, a distance of fifteen miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 48,000

"The subsidies hereinbefore mentioned as to be granted to companies named for that purpose, shall be granted to such companies respectively; the other subsidies,

including subsidies granted for railways over a line extending beyond a point to which any company hereinbefore mentioned by name is authorized to construct its railway, shall be granted to such companies as shall be approved by the Governor in Council as having established to his satisfaction their ability to construct and complete the said railways respectively. All the lines for the construction of which subsidies are granted shall be commenced within two years from the first day of July next, and completed within a reasonable time, not to exceed four years, to be fixed by Order in Council,—except the Erie and Huron Railway, which shall be completed within two years from the first day of July next. And they shall also be constructed according to descriptions and specifications, and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specifying an agreement to be made in each case by the company with the Government, and which the Government is hereby empowered to make. The location, also, of every such line of railway shall be subject to the approval of the Governor in Council. And all the said subsidies respectively shall be payable out of the Consolidated Revenue Fund of Canada, by instalments, on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister, or upon the completion of the work subsidized—except as regards the Erie and Huron Railway Company, upon which payment shall be made only upon the completion of the work—except, also as regards the subsidies to the Inverness and Richmond Railway, which shall be paid on the completion of each ten mile section, in accordance, as nearly as practicable, with the agreement between the company and the municipality of Inverness, and with section four of the Act of the Legislature of Nova Scotia, 1890, intituled: An Act to enable the county of Inverness to borrow money—except, also, as regards the subsidies to the Great Eastern Railway Company for bridges over the Nicolet and St. Francis Rivers, and to the Quebec and Lake St. John Railway for the bridge over the St. Charles River, upon which shall be paid fifteen per cent of the value of work done, on monthly progress estimates certified by the Chief Engineer and upon the approval of the Minister of Railways and Canals—and except also the subsidy granted to the Quebec Central Railway Company, the first annual payment upon which shall be made at the end of twelve months from the date of the Chief Engineer's certificate of the completion of the work, and each subsequent payment at the end of each twelve months thereafter, for the term of twenty years.

"The granting of such subsidies to the companies mentioned, respectively, shall be subject to such conditions for securing running powers or traffic arrangements or other rights as will afford all reasonable facilities and equal mileage rates to all railways connecting with those subsidized, as the Governor in Council determines."

By the special Act 53 Vic., ch. 5, 1890 *(Assented to 16th May, 1890)*:—

230. In order to enable the Calgary and Edmonton Railway Company to construct so much of their railway as reaches from a point on the line of the Canadian Pacific Railway Company within the town of Calgary to a point on the North Saskatchewan River near Edmonton, the Governor in Council may enter into a contract with such company for the transport of men, supplies, materials and mails for twenty years, and may pay for such services during the said term, eighty thousand dollars per annum, in manner following, that is to say: the sum of eighty thousand dollars to be paid annually on the construction of the railway from Calgary to a point on the North Saskatchewan River near Edmonton,—such payment to be computed from the date of the completion of the railway between such points: Provided that the Governor General in Council may order such sums to be paid in semi-annual instalments, and may permit the company to assign the same by way of security for any bonds or securities which may be issued by the company in respect of the company's undertaking.

By 54-55 Victoria, ch. 8, 1891 *(Assented to 30th Sept., 1891)*:—

231. To the Great Northern Railway Company, for a railway from a point at or near New Glasgow or St. Lin to or near to Montcalm, in the province of Quebec, eighteen miles, the balance

remaining unpaid of the subsidy, not exceeding $3,200 per mile, granted by the Act forty-ninth Victoria, chapter ten, nor exceeding in the whole ..... $ 28,100 00

232. To the Quebec and Lake St. John Railway Company, for the railway bridge over the St. Charles River to give access to the city of Quebec, the difference between the amount already paid to the company and the sum of $30,000 mentioned as not to be exceeded by the Act fifty-third Victoria, chapter two, a subsidy not exceeding 5,250 00

233. To the Oshawa Railway Company, for seven miles of their railway from Port Oshawa towards Raglan, in lieu of the subsidy for a like amount granted by the Act passed in the session held in the fiftieth and fifty-first years of Her Majesty's reign, chapter twenty-four, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 22,400 00

234. To the St. Lawrence, Lower Laurentian and Saguenay Railway Company, for the section of their railway from Grand Piles, on the St. Maurice River to its junction with the Quebec and Lake St. John Railway, the balance remaining unpaid of the subsidy granted by the Act passed in the session held in the fiftieth and fifty-first years of Her Majesty's reign, chapter twenty-four, not exceeding in the whole 92,784 00

235. To the Great Eastern Railway Company, for thirty-miles of their railway, from the River St. Francis to the Arthabaska Railway at St. Grégoire station, the balance remaining unpaid of the subsidy, not exceeding $3,200 per mile, granted by the Act passed in the session held in the fiftieth and fifty-first years of Her Majesty's reign, chapter twenty-four, not exceeding in the whole 79,700 00

236. To the South Ontario Pacific Railway Company, for forty-nine and one-half miles of their railway from Woodstock to Hamilton, in the province of Ontario, in lieu of the subsidy for a like amount granted by the Act fifty-second Victoria, chapter three, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 158,400 00

237. To the Montreal and Ottawa Railway Company (formerly the Vaudreuil and Prescott Railway Company), for thirty miles of their railway from Vaudreuil towards Hawkesbury, the balance remaining unpaid of the subsidy granted by the Act passed in the session held in the fiftieth and fifty-first years of Her Majesty's reign, chapter twenty-four, not exceeding in the whole 46,040 00

238. To the Tobique Valley Railway Company, for fourteen miles of their railway from Perth Centre station towards Plaister Rock Island, in lieu of the subsidy for a like amount granted by the Act passed in the session held in the fiftieth and fifty-first years of Her Majesty's reign, chapter twenty-four, a subsidy not exceeding $6,400 per mile, nor exceeding in the whole 89,600 00

239. To the Kingston, Smith's Falls and Ottawa Railway Company for fifty-six miles of their railway from the city of Kingston to Smith's Falls, in lieu of the subsidies, not to exceed $179,200, granted by the Acts fifty-second Victoria, chapter three, and fifty-third Victoria, chapter two, a subsidy not exceeding $12,534 per annum, to be paid in semi-annual instalments of $6,267 each, for twenty years, which represents a grant in cash of 179,200 00

"Provided, that upon the completion of twenty-eight miles of the said railway a semi-annual subsidy may be paid proportionate to the value of the portion so completed in comparison with that of the whole fifty-six miles; Provided also, that the company may deposit with the Minister of Finance and Receiver General a sum not exceeding $1,170,000, in consideration whereof there shall be paid to the company, for twenty years, a semi-annual annuity calculated on a basis of three and one-half per cent on the amount so deposited; Provided further, that the Governor in Council may permit the company to assign the said subsidy and annuity to trustees by way of security for any bonds or securities which may be issued by the company in respect of their undertaking."

240. To the Brockville, Westport and Sault Ste. Marie Railway Company, for twenty miles of their railway, from a point at or near Newboro' towards Palmer's Rapids, in the province of Ontario, in lieu of a subsidy for a like amount granted by the Act fifty-second Victoria, chapter three, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $64,000 00

"Provided that the subsidy hereby granted to the Brockville, Westport and Sault Ste. Marie Railway Company may be paid by instalments, on the completion of each section of the railway as follows, that is to say:—

Sections.	Length in miles.
From, at or near Newboro' to Westport.....	4
From Westport towards Palmers Rapids.....	16

"The subsidies hereinbefore mentioned as to be granted to companies named for that purpose shall be granted to such companies respectively; all the lines for the construction of which subsidies are granted, unless they are already commenced, shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years, to be fixed by Order in Council; and shall also be constructed according to descriptions and specifications and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals and specified in an agreement to be made in each case by the company with the Government, and which the Government is hereby empowered to make; the location, also of every such line of railway, shall be subject to the approval of the Governor in Council; and all the said subsidies respectively shall be payable out of the Consolidated Revenue Fund of Canada, by instalments, on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister, or upon the completion of the work subsidized—except as to the subsidy granted to the Kingston, Smith's Falls and Ottawa Railway Company, the first semi-annual payment upon which shall be made at the end of six months from the date of the Chief Engineer's certificate of the completion of twenty-eight miles of the railway, and each subsequent payment at the end of each six months thereafter, for the term of twenty years,—except also as to the Quebec and Lake St. John Railway Company, the subsidy to which shall be paid upon the completion of the work,—except also as to the Brockville, Westport and Sault Ste. Marie Railway Company, the subsidy to which shall be paid as follows: on the completion of that portion of the said road from, at or near Newboro' to Westport, a distance of four miles, the sum of twelve thousand eight hundred dollars, and on the completion of the remaining sixteen miles from Westport towards Palmer's Rapids, the sum of fifty-one thousand two hundred dollars.

"Within one month after the commencement of each session of Parliament, whilst any of the said moneys are being paid out, there shall be laid before Parliament a statement showing all payments of such moneys during the then next preceding year, the names of the respective persons to whom such payments have been made, and the amounts paid them respectively, together with the engineer's report upon which pay-

ments have been recommended, and copies of all contracts between the Government and the company under which the said subsidies are authorized to be paid.

"The granting of such subsidies respectively shall be subject to such conditions for securing such running power or traffic arrangements and other rights as will afford all reasonable facilities and equal mileage rates to all railways connecting with those so subsidized, as the Governor in Council determines.

By the Act 55-56 Victoria, chap. 5, 1892 *(Assented to 9th July, 1892)* :—

241. To the Lake Erie and Detroit River Railway Company, for fifty-eight miles of their railway from a point at or near Cedar Creek to the town of Ridgetown, in lieu of the subsidies granted to the Lake Erie and Detroit River Railway Company by the Act 53 Victoria, chapter 2, and to the Amherstburg, Lake Shore and Blenheim Railway Company by the Act 52 Victoria, ch. 3. $224,000 00

242. To the Ottawa, Arnprior and Parry Sound Railway Company, for fifty-five miles of their railway from Barry's Bay towards the Northern Pacific Junction Railway, a subsidy not exceeding $6,400 per mile on the first twenty-seven and a half miles out from Barry's Bay, and not exceeding $3,200 per mile on the second twenty-seven and a half miles, nor exceeding in the whole..... 264,000 00

243. To the Canadian Pacific Railway Company or to the Columbia and Kootenay Railway and Navigation Company, for a railway from a point on the Canadian Pacific Railway at or near Revelstoke to the head of Arrow Lake, for twenty-five miles of such railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 80,000 00

244. To the Tobique Valley Railway Company, for a railway from the north end of the eleven miles for which a subsidy was granted by the Act 53 Victoria, chapter 2, to Plaister Rock Island, for 3 miles of such railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 9,600 00

245. To the Monfort Colonization Railway Company, for twenty-one miles of their railway from Lachute, St. Jérôme or a point at or near St. Sauveur, on the line of the Montreal and Western Railway, to Monfort and westward, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 67,200 00

246. To the Ontario, Belmont and Northern Railway Company, for ten miles of their railway from the Belmont iron mines to the Canadian Pacific Railway and the Central Ontario Railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 32,000 00

247. To the Montreal and Champlain Junction Railway Company, the balance remaining unpaid of the subsidies granted by the Acts 50-51 Victoria, chapter 24, and 51 Victoria, chapter 3, a subsidy of..... 15,100 00

248. To the Buctouche and Moncton Railway Company, for thirty-two miles of their railway from Moncton to Buctouche, the balance remaining unpaid of the subsidy, not exceeding $3,200 per mile, granted by the Acts 49 Victoria, chapter 10, and 50-51 Victoria, chapter 24, not exceeding in the whole..... 35,480 00

249. To the Cobourg, Northumberland and Pacific Railway Company, for nineteen miles of their railway from Cobourg to the Ontario and Quebec Railway (in addition to the subsidy granted by the Act 53 Victoria, chapter 2), a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 60,800 00

250. For a railway from the parish of St. Rémi, in the county of Napierville, to St. Cyprien in the said county, for twelve miles of such railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole ..... $ 38,400 00

251. To the Inverness and Richmond Railway Company (or any other company undertaking the work), for twenty-five miles of their railway from a point on the Cape Breton Railway, at or near Orangedale, to Broadcove, a subsidy not exceeding $3,200 per mile, in lieu of the subsidy of $50,000 granted to the said railway company by 53 Victoria, chapter 2, and on the same conditions, not exceeding in the whole 80,000 00

252. To the Nicola Valley Railway Company, for twenty-five miles of their railway from a point on the Canadian Pacific Railway at or near Spence's Bridge towards Nicola Lake 80,000 00

253. To the Lotbinière and Megantic Railway Company, for fifteen miles of their railway from a point at or near St. Jean Deschaillons towards Glen Lloyd, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 48,000 00

254. To the Stewiacke and Lansdowne Railway Company, for a railway from a point on the Intercolonial Railway, through the Stewiacke Valley, on a line which will afford facilities of communication with the iron mines at Springside, Upper Stewiacke and Musquodoboit settlements, twenty-five miles, in lieu of the subsidy granted by the Act 53 Victoria, chapter 2, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 80,000 00

255. To the Philipsburg Junction Railway and Quarry Company, for six and seven-hundredths miles of their railway from Stanbridge Station to Philipsburg, in the county of Missisquoi, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 21,600 00

256. To the Kingston, Napanee and Western Railway Company, for three miles of their railway from a point at or near Harrowsmith to a point at or near Sydenham, in lieu of the subsidy granted for this section of road by the Act 52 Victoria, chapter 3, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 9,600 00

257. For a railway from Cape Tourmente towards Murray Bay, in the province of Quebec, twenty miles, in lieu of the subsidy granted by the Act 52 Victoria, chapter 3, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 64,000 00

258. To the Stewiacke and Lansdowne Railway Company, for a railway from Truro, or a point between Truro and Stewiacke, to Newport or to Windsor, in the province of Nova Scotia, for forty-nine miles of such railway, in lieu of the subsidy granted by the Act 52 Victoria, chapter 3, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 156,800 00

259. To the Restigouche and Victoria Railway Company, for fifteen miles of their railway from Campbelton towar s Grand Falls, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 48,000 00

260. For a railway from St. Johns to Ste. Rosalie, thirty-two miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 102,400 00

261. For a railway from St. Placide to St. Andrew's, eight miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole.. 25,600 00

262. For a railway to complete the connection between Sydney and Louisburg, in the county of Cape Breton, for twenty-eight miles of such railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 89,600 00

263. To the Belleville and Lake Nipissing Railway Company, for thirty miles of their railway from Belleville to Tweed and thence to Bridgewater, in lieu of the subsidy granted by the Act 53 Victoria, chapter 2, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 96,000 00

264. To the Kingston, Smith's Falls and Ottawa Railway Company, for fifty-six miles of their railway from the city of Kingston to Smith's Falls, in lieu of the subsidies, not to exceed $179,200, granted by the Acts 52 Victoria, chapter 3, and 53 Victoria, chapter 2, a subsidy calculated on a basis of three and a half per cent on the amount of such subsidies so granted, to be paid in semi-annual instalments for such period not exceeding twenty-one years, as the company may elect, which represents a grant in cash of..... 179,200 00

" Provided, that upon the completion of twenty-eight miles of the said railway a semi-annual subsidy may be paid proportionate to the value of the portion so completed in comparison with that of the whole fifty-six miles : Provided also, that the company may deposit with the Minister of Finance and Receiver General, a sum not exceeding $1,170,000, in consideration whereof there shall be paid to the company for such period not exceeding twenty years as the company may elect, a semi-annual annuity calculated on a basis of three and a half per cent on the amount so deposited. Provided further, that the Governor in Council may permit the company to assign the said subsidy and annuity to trustees by way of security for any bonds or securities which may be issued by the company in respect of their undertaking."

265. To the St. Catharines and Niagara Central Railway Company, for thirty-four miles of their railway from the city of St. Catharines to the city of Hamilton, in lieu of the subsidies, not to exceed $108,000, granted by the Acts 52 Victoria, chapter 3, and 53 Victoria, chapter 2, a subsidy calculated on a basis of three and a half per cent on the amount of the said subsidies, to be paid in semi-annual instalments for such period, not exceeding twenty years, as the company may elect, representing a grant in cash of $108,000 : Provided that, upon the completion of ten miles of said railway, a semi-annual subsidy may be paid proportionate to the value of the portion so completed in comparison with that of the whole thirty-four miles. Provided also, that the company may deposit with the Minister of Finance and Receiver General a sum not exceeding $400,000, in consideration whereof there shall be paid by the Government to the company, for such period not exceeding twenty years, as the company may elect, a semi-annual annuity, calculated on a basis of three and a half per cent on the amount so deposited, or a guarantee of a like sum, as interest on the bonds of the company : Provided further, that the company, with the approval of the Governor in Council, may assign the said subsidy and annuity to trustees by way of security for principal, or interest of any bonds or securities which may be issued by the company in respect of their undertaking, and the subsidy last above mentioned to the St. Catharines and Niagara Central Railway Company shall be paid in instalments, the first semi-annual payment upon which shall be made at the end of the six months from the date of the Chief Engineer's certificate of the completion of the first ten miles of railway, and each subsequent payment at the end of six months thereafter, for the term of twenty years or less. It is a condition of this subsidy that the sum not exceeding $400,000 above mentioned shall be deposited with the Finance Minister before January 1st, 1893.

266. To the Woodstock and Centreville Railway Company, for a railway from Woodstock towards Centreville, twenty miles, in lieu of the subsidy granted by 50-51 Victoria, chapter 24, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $64,000 00

267. To the Brockville, Westport and Sault Ste. Marie Railway Company, for the balance remaining unpaid of the subsidy granted by the Act 52 Victoria, chapter 3, not exceeding $3,200 per mile, and also for the balance remaining unpaid of the subsidy granted by the Act 53 Victoria, chapter 2, nor exceeding in the whole..... 96,800 00

268. To the New Glasgow Iron, Coal and Railway Company, for a railway from Eureka Junction on the Intercolonial Railway to a point at or near Sunnybrae, including a branch line to the charcoal iron furnace at Bridgeville, for twelve and a half miles of such railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 40,000 00

269. To the Thousand Island Railway Company, for an extension of their railway to connect with the Brockville, Westport and Sault Ste. Marie Railway, the Kingston, Napanee and Western Railway, the Kingston, Smith's Falls and Ottawa Railway, or the waters of the Rideau Canal, and an extension across the mouth of the Gananoque River, the balance remaining unpaid of the subsidy granted by the Act 52 Victoria, chapter 3, not exceeding in the whole..... 44,000 00

Payable, $14,000 on the completion of the last named or southern extension, and the balance of said subsidy, being $30,000, on the completion of the first named or northern extension of their railway.

270. To the Manitoulin and North Shore Railway Company, for thirty miles of their railway from Little Current to the Algoma Branch of the Canadian Pacific Railway, in lieu of the subsidy granted by the Act 53 Victoria, chapter 2, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $96,000 00

271. To the Lindsay, Bobcaygeon and Pontypool Railway Company, for sixteen miles of their railway from the end of the line subsidized by the Act 53 Victoria, chapter 2, at the junction with the Midland Railway, to Pontypool, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 51,200 00

272. For seventy-five miles of the railway from Sand Point, Shelburne Harbour, in Nova Scotia, to Annapolis Royal, in the county of Annapolis and to a junction at or near New Germany on the Nova Scotia Central Railway, with a view to future construction to Liverpool, in lieu of the subsidy of a like amount granted by the Act 53 Victoria, chapter 2, for the same length of railway from Shelburne and from Liverpool, towards Annapolis, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 240,000 00

273. To the Kingston, Napanee and Western Railway Company, for twenty miles of their railway, being extensions or branches in the counties of Peterborough, Hastings, Addington, Frontenac or Leeds, towards iron deposits, a subsidy not exceeding $3,200 per mile, payable in instalments regulated by the length of each of the said extensions, additions or branches, the subsidy not exceeding in the whole..... 64,000 00

274. To the St. John Valley and Rivière du Loup Railway Company, for ten miles of their railway from the north end of the line subsidized by the Act 53 Victoria, chapter 2, towards the town of Woodstock, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 48,000 00

275. To the Cobourg, Northumberland and Pacific Railway Company, for thirty miles of their railway from Cobourg to the Ontario and Quebec Railway, in lieu of the subsidy granted by the Act 53 Victoria, chapter 2, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 96,000 00

276. To the Ottawa, Arnprior and Parry Sound Railway Company, for thirty miles of their railway, from Eganville to Barry's Bay, in lieu of the subsidy granted by the Act 53 Victoria, chapter 2, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000 00

277. To the Ottawa, Arnprior and Parry Sound Railway Company, for twenty-two miles of their railway from a point on the Canadian Pacific Railway to Eganville, in lieu of the subsidy granted by the Act 51 Victoria, chapter 3, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 70,400 00

278. To the Lake Témiscamingue Colonization Railway Company, for thirty-five miles of their railway from Mattawa to the Long Sault, in lieu of the subsidies granted by the Acts 52 Victoria, chapter 3, and 53 Victoria, chapter 2, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 112,000 00

279. To the Témiscouata Railway Company, for twelve miles of their railway from the north end of the section of the St. François Branch subsidized by the Act 51 Victoria, chapter 3, being the first twelve miles on the section subsidized by the Act 53 Victoria, chapter 2, a subsidy not exceeding $1,800 per mile, in addition to the subsidy already granted, and not exceeding in the whole..... 21,600 00

280. To the Tilsonburg, Lake Erie and Pacific Railway Company, for sixteen miles of their railway from Port Burwell to Tilsonburg, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 51,200 00

281. To the Woodstock and Centreville Railway Company, for six miles of their railway from the west end of their twenty miles subsidized by the Act 50-51 Victoria, chapter 24, to the international boundary between the province of New Brunswick and the state of Maine, in lieu of the subsidy granted by the Act 53 Victoria, chapter 2, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 19,200 00

282. To the Lake Témiscamingue Colonization Railway Company, for 15 miles of their railway from the Long Sault to the crossing of the Kippewa River, a subsidy not exceeding $3,200 per mile—and a subsidy of fifteen per cent on the value of a wooden truss bridge over the Ottawa River near Mattawa, not exceeding $15,000,—nor exceeding in the whole..... 63,000 00

283. To the Goderich and Wingham Railway Company, for thirty-one miles of their railway from Goderich to Wingham, via Port Albert, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 99,200 00

284. To the Joliette and St. Jean de Matha Railway Company, for eight miles of their railway from St. Félix de Valois to St. Jean de Matha, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 25,600 00

285. To the Bracebridge and Baysville Railway Company, for fifteen miles of their railway from Bracebridge towards Baysville, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole. 48,000 00

286. To the Nipissing and James Bay Railway Company, for twenty-five miles of their railway from, at or near North Bay station on

the Canadian Pacific Railway towards James Bay, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 80,000 00

287. For a railway from a point on the Intercolonial Railway between Ste. Flavie and Little Métis station to Matane, for fifty miles of such railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 160,000 00

288. To the Ontario and Pacific Railway Company, for fifty-three and eighty-seven hundredths miles of their railway from Cornwall to Ottawa, in lieu of the subsidy granted by the Act 52 Victoria, chapter 3, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 172,400 00

289. For a railway from a point on the line of the Canadian Pacific Railway on the Isle Jésus, in the county of Laval, towards St. Eustache, for twelve miles of such railway, in lieu of the subsidy granted by the Act 50-51 Victoria, chapter 24, to the Carillon and Grenville Railway Company, for twelve miles of their railway, from St. Eustache to Sault au Récollet, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 38,400 00

290. For a railway from St. Eustache to St. Placide, in the county of Two Mountains, for eighteen miles of such railway, in lieu of the subsidy granted by the Act 49 Victoria, chapter 10, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 57,600 00

291. To the Port Arthur, Duluth and Western Railway Company, the balance remaining unpaid of the subsidy granted by the Act 51 Victoria, chapter 3, not exceeding, with the amount already paid, $3,200 per mile, nor exceeding in the whole..... 114,125 00

292. To the Drummond County Railway Company for four and six-tenths miles of their railway from Bull's Wharf, on the St. Lawrence River, near Nicolet, to Ste. Rosalie Junction, an excess of distance by the constructed line over the subsidies heretofore voted for a railway between the said points, $3,200 per mile, not exceeding in the whole..... 14,720 00

293. To the St. Lawrence and Adirondack Railway Company, for five and forty-two hundredths miles of their railway, from Huntingdon towards the international boundary, which, with the distance between Valleyfield and Huntingdon, twelve and fifty-eight hundredths miles, makes up the distance of eighteen miles named in the 53 Vic., chap. 2, granting a subsidy to this company, and for five and forty-hundredths miles from the east end of the eighteen miles referred to to the international boundary, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 25,024 00

" The subsidies hereinbefore mentioned as to be granted to companies named for that purpose shall, if granted by the Governor in Council, be granted to such companies respectively ; the other subsidies may be granted to such companies as shall be approved by the Governor in Council as having established to his satisfaction their ability to construct and complete the said railways respectively ; all the lines for the construction of which subsidies are granted, unless they are already commenced, shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years, to be fixed by Order in Council, and shall also be constructed according to descriptions and specifications, and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be made in each case by the company with the Government, which agreement the Government is hereby empowered to make ; the location also of every such line of railway shall be subject to the approval of the Governor in Council ; and all the said subsidies respectively shall be payable out of the Consolidated

Revenue Fund of Canada, by instalments, on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister, or upon the completion of the work subsidized,—except as to subsidies with respect to which it is hereinbefore otherwise provided, and except also as to the subsidy granted to the Kingston, Smith's Falls and Ottawa Railway Company, and the subsidy granted to the St. Catharines and Niagara Central Railway Company, the first semi-annual payments upon both of which shall be made at the end of six months from the date of the Chief Engineer's certificate of the completion of their railways respectively, and each subsequent payment at the end of each six months thereafter, for the term of twenty years or less.

"The granting of such subsidies respectively shall be subject to such conditions for securing such running powers or traffic arrangements and other rights as will afford all reasonable facilities and equal mileage rates to all railways connecting with those so subsidized, as the Governor in Council determines."

294. Notwithstanding the expiration of the time limited by the Act 47 Victoria, chapter 8, and by the contract entered into with the Pontiac Pacific Junction Railway Company, the Governor in council may pay the balance remaining unpaid of the subsidy granted by the said Act to the said company, according as it becomes due and payable in accordance with the said contract, and subject to the terms and conditions applicable to the said subsidy under the terms of the said Act.

295. Notwithstanding the expiration of the time limited by the Act 52 Victoria, chapter 3, and by the contract entered into with the Quebec and Lake St. John Railway Company, the Governor in Council may pay the balance remaining unpaid of the subsidy granted by the said Act to the said company, according as it becomes due and payable in accordance with the said contract, and subject to the terms and conditions applicable to the said subsidy under the terms of the said Act; and notwithstanding anything contained in the Act 50-51 Victoria, chapter 24, the Governor in Council may also pay to the said company the balance remaining unpaid of the subsidy granted to the company by the said Act, amounting to $12,800, on the four miles of their road from the north end of the main line subsidized towards Roberval.

By the Act 56 Vic., chap. 2, 1893 (*Assented to 1st April, 1893*):—

296. To the Great Eastern Railway Company, for twenty miles of their railway, from the east end of the line subsidized by the Act 50-51 Victoria, chapter 24, at St. Grégoire, towards the Chaudière Junction station on the Intercolonial Railway, in the province of Quebec, in lieu of the subsidy granted by the Act 52 Victoria, chapter 3, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 64,000 00

297. To the United Counties Railway Company, for thirty-two miles of their railway, from a point at or near the town of Iberville to St. Hyacinthe, and thence towards Sorel, in lieu of the subsidy granted by the Act 55-56 Victoria, chapter 5, for a railway from St. Johns to Ste. Rosalie, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 102,400 00

298. To the Ontario, Belmont and Northern Railway Company, for ten miles of their railway, divided into two sections: first, from the Belmont Iron Mines to Marmora village; second, from Marmora village to the junction with the Ontario Central Railway, in lieu of the subsidy granted by the Act 55-56 Victoria, chapter 5, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 32,000 00

299. To the Central Ontario Railway Company, for twenty miles of their railway, from Coe Hill or Gilmore, or some point between

Coe Hill and Gilmore, to Bancroft, via L'Amable, or as near thereto as practicable, in lieu of the subsidy granted by the Act 48-49 Victoria, chapter 59, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole ..... $ 64,000 00

300. To the Quebec and Lake St. John Railway Company, for thirty miles of their railway, from Lake St. John towards Chicoutimi, the balance remaining unpaid of the subsidy granted by the Act 51 Victoria, chapter 3, not exceeding in the whole 81,040 00

301. To the Irondale, Bancroft and Ottawa Railway Company, for fifty miles of their railway, from the Victoria branch of the Midland Railway to the village of Bancroft, in the county of Hastings, the balance remaining unpaid of the subsidy granted by the Act 47 Victoria, chapter 8, and again granted by the Act 52 Victoria, chapter 3, not exceeding in the whole 145,000 00

302. To the Beauharnois Junction Railway Company, for thirty miles of their railway, from Ste. Martine towards St. Anicet, the balance remaining unpaid of the subsidy granted by the Act 50-51 Victoria, chapter 24, not exceeding in the whole 3,500 00

303. To the St. Stephen and Milltown Railway Company, for three and a half miles of their railway, from the town of St. Stephen to the town of Milltown, in lieu of the subsidy granted by the Act 53 Victoria, chapter 2, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 11,200 00

304. To the Quebec, Montmorency and Charlevoix Railway Company, for thirty miles of their railway, from the east bank of the River St. Charles, to or near to Cape Tourmente, in the province of Quebec, the balance remaining unpaid of the subsidy granted by the Act 52 Victoria, chapter 3, not exceeding in the whole.. 30,400 00

305. To the Ottawa and Gatineau Valley Railway Company, for sixty-two miles of their railway, from Hull station towards Le Désert, the balance remaining unpaid of the subsidy granted by the Act 52 Victoria, chapter 3, not exceeding in the whole 89,248 00

306. To the Grand Trunk, Georgian Bay and Lake Erie Railway Company, for fifteen miles of their railway, from the village of Tara, or some point between Tara and Hepworth, to the town of Owen Sound, in the province of Ontario, in lieu of the subsidy granted by the Act 52 Victoria, chapter 3, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 48,000 00

307. To the Nova Scotia Central Railway Company (or to such person or persons or company as in the opinion of the Minister or acting Minister of Justice are entitled to the same) for eighty miles of their railway, from Lunenburg, on the east coast of Nova Scotia, westward to a point in the district of New Germany, together with a spur about three-fourths mile long to Bridgewater railway wharf, and from a point thirty-three and a half miles from Lunenburg and running to Middleton on the Windsor and Annapolis Railway, of unpaid subsidies granted by the Acts 50-51 Victoria, chapter 24, and 51 Victoria, chapter 3, an amount not exceeding in the whole 4,500 00

308. To the Great Northern Railway Company, for eighteen miles of their railway, from a point at or near New Glasgow or St. Lin, to or near to Montcalm, in the province of Quebec, the balance remaining unpaid of the subsidy granted by the Act 54-55 Victoria, chapter 8, not exceeding in the whole 25,600 00

309. To the Great Northern Railway Company, for fifteen miles of their railway, from, at or near Montcalm to the Canadian Pacific

Railway between Joliette and St. Félix de Valois, in lieu of the subsidy granted by the Act 53 Victoria, chap. 2, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 48,000 00

310. To the Montfort Colonization Railway Company, for twenty-one miles of their three-feet gauge railway from Lachute, St. Jérôme, or a point at or near St. Sauveur, on the line of the Montreal and Western Railway, to Montfort and westward, in lieu of the subsidy granted by the Act 55-56 Victoria, chapter 5, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 67,200 00

311. To the Maskinongé and Nipissing Railway Company, for fifteen miles of their railway, from a point on the Canadian Pacific Railway at or near Maskinongé or Louisville, towards the parish of St. Michel des Saints, on the river Mattawa, in the province of Quebec, and for fifteen miles of their railway from the north end of the fifteen miles above referred to, towards the parish of St. Michel des Saints on the river Mattawa, in the province of Quebec, in lieu of the subsidies granted by the Acts 52 Victoria, chap. 3, and 53 Victoria, chap. 2, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000 00

312. To the Parry Sound Colonization Railway Company, for forty miles of their railway, from the village of Parry Sound to the village of Sundridge, or some other point on the Northern Pacific Junction Railway, in the province of Ontario, the balance remaining unpaid of the subsidy granted by the Act 52 Victoria, chapter 3, not exceeding in the whole..... 97,600 00

313. To the Jacques Cartier Union Railway Company, for extending and completing their railway, in lieu of the subsidy granted by the Act 50-51 Victoria, chapter 24, a subsidy of..... 20,000 00

314 To the Oshawa Railway Company, for seven miles of their railway and branches as follows: from Port Oshawa to a point at or near Edmondson's Falls mill site, near Mill Street, in the town of Oshawa (this portion being known as the "Lake" section of the said railway); thence to a point at or near the town hall in the town of Oshawa, and thence to the Oshawa station of the Grand Trunk Railway Company of Canada (this portion being known as the "Town" or "Northern" section of the said railway)—in lieu of the subsidy granted by the Act 54-55 Victoria, chapter 8, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 22,400 00

"All the lines for the construction of which subsidies are granted, unless they are already commenced, shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years, to be fixed by Order in Council, and shall also be constructed according to descriptions and specifications and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be made in each case by the company with the Government, which agreement the Government is hereby empowered to make; the location, also, of every such line of railway shall be subject to the approval of the Governor in Council.

"The granting of such subsidies respectively shall be subject to such conditions for securing such running powers or traffic arrangements and other rights as will afford all reasonable facilities and equal mileage rates to all railways connecting with those so subsidized, as the Governor in Council determines.

"All the said subsidies respectively shall be payable out of the Consolidated Revenue Fund of Canada, by instalments on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed

in comparison with that of the whole work undertaken, to be established by the report of the said Minister, or upon the completion of the work subsidized,—except as follows :—

"(*a.*) The subsidy to the Ontario, Belmont and Ottawa Railway Company, which shall be paid as follows : on the completion of the first section, an instalment proportionate to the value of the said section in comparison with that of the ten miles hereby subsidized, to be established as aforesaid, and the balance of the said subsidy on the completion of the second section ;

"(*b.*) The subsidy to the Oshawa Railway Company, which shall be paid as follows : on the completion of the "Town" or "Northern" section, an instalment proportionate to the value of the said section in comparison with that of the seven miles hereby subsidized, to be established as aforesaid, and the balance of the said subsidy, on the completion of the "Lake" section of the said railway."

By the Act 57-58 Vic., cap. 4, 1894. *(Assented to, 23rd July, 1894)* :—

315. To the Bracebridge and Baysville Railway Company, for fifteen miles of their railway from Bracebridge towards Baysville, in lieu of the subsidy granted by chapter 5 of 1892, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 48,000

316. To the Brockville, Westport and Sault Ste. Marie Railway, the balance remaining unpaid of the subsidy granted by chapter 3 of 1889, not exceeding $3,200 per mile, and also the balance remaining unpaid of the subsidy granted by chapter 2 of 1890, which was re-granted by chapter 5 of 1892 ; the whole not exceeding 86,800

317. To the Tilsonburg, Lake Erie and Pacific Railway Company, for sixteen miles of their railway, from Port Burwell to Tilsonburg, in lieu of the subsidy granted by chapter 5 of 1892, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 51,200

318. To the Brantford, Waterloo and Lake Erie Railway Company, for eighteen miles of their railway, from the town of Brantford to the village of Hagarsville or the village of Waterford, or some intermediate point on the Canada Southern Railway, the balance remaining unpaid of the subsidy granted by chapter 24 of 1887, not exceeding $3,200 per mile, nor exceeding in the whole 4,790

319. To the St. Catharines and Niagara Central Railway Company, for 34 miles of their railway from the city of St. Catharines to the city of Hamilton, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 108,800

320. To the Montreal and Ottawa Railway Company (formerly the Vaudreuil and Prescott Railway Company), for thirty miles of their railway from Vaudreuil towards Hawkesbury, the balance remaining unpaid of the subsidy granted by chapter 24 of 1887 ; and for 30 miles of their railway from the western end of the 30 miles first mentioned towards Ottawa, the balance remaining unpaid of the subsidy granted by chapter 2 of 1890, not exceeding $3,200 per mile ; the whole not exceeding..... 118,400

321 Notwithstanding the expiration of the time limited by chapter 2 of 1890, and by the contract entered into with the Quebec Central Railway Company, and notwithstanding anything otherwise in the said chapter 2 contained, the Governor in Council may pay the subsidy granted by the said chapter to the said company at the present worth of the twenty annual payments mentioned in the said chapter (interest computed at four per cent), for and upon the completion of its railway extending from a point between the Chaudière River and Tring Station to a point on the International Railway at or near Lake Megantic, and upon the inspection and acceptance of the same by the Chief Engineer of Railways and Canals, the sum in all of..... 288,000

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322. To the Philipsburg Junction Railway and Quarry Company, for $\frac{67}{100}$ mile of their railway from Stanbridge Station to Philipsburg, in the county of Missisquoi and a branch to Missisquoi Bay, the balance remaining unpaid of the subsidy granted by chapter 5 of 1892, not exceeding $3,200 per mile, nor exceeding in the whole ..... $ 2,912

323. To the Joliette and St. Jean de Matha Railway Company, for 8 miles of their railway from St. Félix de Valois to St. Jean de Matha, in lieu of the subsidy granted by chapter 5 of 1892, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 23,600

324. To the Lake Temiscamingue Colonization Railway Company, for their railway from Mattawa to the foot of the Kippewa Lake, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole $160,000,—also 15 per cent on the value of a wooden truss bridge over the Ottawa River near Mattawa, not to exceed $15,000 in all, in lieu of the subsidies granted by chapter 5 of 1892,—also the balance remaining unpaid of the subsidy granted by chapter 24 of 1887, for their railway from Long Sault to Lake Kippewa, a subsidy not exceeding $3,200 per mile of railway and 15 per cent on the value of the bridges,—also, a sum of $1,750 additional per mile on their said railway from Mattawa to the foot of the Kippewa Lake; the whole not exceeding 274,940

325. For a railway from St. Placide to St. Andrews, 8 miles, in lieu of the subsidy granted by chapter 5 of 1892, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 25,600

326. For a railway from St. Eustache to St. Placide, in the county of Two Mountains, for 18 miles of such railway, in lieu of the subsidy granted by chapter 5 of 1892, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 57,600

327. For a railway from a point on the line of the Canadian Pacific Railway on Isle Jésus, in the county of Laval, towards St. Eustache, for 12 miles of such railway, in lieu of the subsidy granted by chapter 5 of 1892, to the Carillon and Grenville Railway Company, for 12 miles of their railway, from St. Eustache to Sault au Récollet, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 38,400

328. For a railway from the parish of St. Rémi, in the county of Napierville, to St. Cyprien, in the said county, for 12 miles of such railway, in lieu of the subsidy granted by chapter 5 of 1892, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 38,400

329. To the Pontiac Pacific Junction Railway Company, for bridging the several channels of the Ottawa River at Culbute and west thereof, a subsidy of $31,500, to be paid out monthly as the work progresses, upon the certificate of the chief engineer of government railways, in the proportion which the value of the work executed bears to the value of the whole work undertaken; and for 3 miles of their railway extending from a point 3 miles east of Pembroke to Pembroke, in the province of Ontario, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole $9,600, in lieu of the subsidy granted by chapter 3 of 1888; provided that the entire work subsidized upon this railway shall be completed within 4 years from the passing of this Act; the subsidy granted by this Act not to exceed in the whole 41,100

330. To the Pontiac Pacific Junction Railway Company, for the construction or acquisition of 7½ miles of railway, from Hull to Aylmer, in lieu of the subsidy granted by chapter 2 of 1890, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole. $ 24,000

331. To the Pontiac Pacific Junction Railway Company, for 85 miles of their railway from Aylmer to Pembroke, the balance remaining unpaid of the subsidy granted by chapter 8 of 1884, less the subsidy granted for the line from Hull to Aylmer, provided the Ottawa River is crossed at some point not east of Lapasse, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 73,172

332. To the Harvey Branch Railway Company, for 3 miles of their railway from the southern terminus of the Albert Railway to Harvey Bank, the balance remaining unpaid of the subsidy granted by chapter 24 of 1887, not exceeding $3,200 per mile, nor exceeding in the whole..... 4,046

333. For a railway from a point on the Intercolonial Railway near Newcastle via Douglastown, to a point on the River Miramichi opposite the town of Chatham, in the province of New Brunswick, 6 miles, in lieu of the subsidy granted by chapter 10 of 1886, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 19,200

334. For a railway from some point on the Joggins Railway, near the Hebert River, to Young's Mills, in the province of Nova Scotia, a distance of 5 miles, in lieu of the subsidy granted by chapter 3 of 1889, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 16,000

335. To the Woodstock and Centreville Railway Company, for a railway from Woodstock to the international boundary between the province of New Brunswick and the state of Maine, 26 miles, in lieu of the subsidies granted by chapter 24 of 1887 and chapter 2 of 1890 a subsidy not exceeding $3,200 per mile nor exceeding in the whole..... 83,200

336. For 90 miles of the railway from Newport or Windsor to Truro, or to a point between Truro and Stewiacke, and from a point on the said railway to a point at or near Eastville, and from Eastville through the valley of the Musquodoboit River towards a point on the proposed Dartmouth branch of the Intercolonial, in lieu of the subsidy granted by chapter 5 of 1892, a subsidy not exceeding $3,200 per mile; and also for a railway bridge over the Shubenacadie River on the line of the said railway, a subsidy of 15 per cent on the value of the structure; the whole not exceeding..... 300,000

337. To the Nipissing and James Bay Railway Company, for 25 miles of their railway from, at or near North Bay Station on the Canadian Pacific Railway towards James Bay, in lieu of the subsidy granted by chapter 5 of 1892, a subsidy not exceeding $3,200 per mile; also for 43 miles of their railway from North Bay towards Lake Tamagaming, a subsidy not exceeding $3,200 per mile; the whole not exceeding..... 217,000

338. To the Lotbinière and Mégantic Railway Company, for 15 miles of their railway, in addition to the 15 miles already subsidized and built, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 48,000

339. To the Drummond County Railway Company, for 30 miles of their railway from St. Leonard northerly towards a junction with the Intercolonial Railway at Chaudière Junction, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000

340. For a railway from Lime Ridge, in the county of Wolfe, in the province of Quebec, northerly through the county of Wolfe and into the county of Megantic, a distance not exceeding 50 miles from Lime Ridge, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $160,000

341. To the Strathroy and Western Counties Railway Company, for 25 miles of their railway from St. Thomas through the counties of Elgin and Middlesex, towards Forest Station or Park Hill, on the Grand Trunk Railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 80,000

342. To the Parry Sound Colonization Railway Company, for 20 miles of their railway east from Parry Sound, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 64,000

343. To the Manitoulin and North Shore Railway Company, for 10 miles of their railway from Little Current to Nelson, on the Algoma Branch of the Canadian Pacific Railway, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole.. 32,000

344. To the United Counties Railway Company for 32 miles of their railway from Iberville to Sorel, in addition to the 32 miles already subsidized, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 102,400

345. To the Joliette and St. Jean de Matha Railway Company, for 12 miles of their railway from St. Jean de Matha to Ste. Emelie de L'Energie, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 38,400

346. To the Great Northern Railway Company, for 22 miles of their railway, from the eastern end of the 15 miles subsidized by chapter 2 of 1893 to a point between Joliette and St. Félix de Valois, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 70,400

347. To the Quebec and Lake St. John Railway Company, for 2 miles of the Chicoutimi branch of their railway, from the east end of the 50 miles already subsidized and built eastward to deep water at Chicoutimi, a subsidy not exceeding $3,200 per mile ; also for 12 miles from the 52nd mile on the Chicoutimi branch to Ha Ha Bay, a subsidy not exceeding $3,200 per mile ; the whole not exceeding..... 44,800

348. To the Pontiac and Ottawa Railway Company, for 23 miles of their railway from the point of divergence from the Pontiac Railway to Ferguson's Point, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 73,600

349. To the Ottawa and Gatineau Valley Railway Company, for 20 miles of their railway from the eastern end of the 62 miles already subsidized towards Désert, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 64,000

350. To the Canada Eastern Railway Company for 6 miles of their railway from the town of Chatham to Black Brook, a subsidy not exceeding $3,200 per mile ; also for 4 miles of their railway for a branch to the village of Nelson, a subsidy not exceeding $3,200 per mile ; the whole not exceeding..... 32,000

351. For a railway from Cross Creek Station, on the Canada Eastern Railway to Stanley village, in the county of York, in the province of New Brunswick, 6 miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 19,200

352. To the Restigouche and Victoria Railway Company, for 20 miles of their railway from the western end of the 15 miles subsidized by chapter 5 of 1892, towards Grand Falls, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 64,000

353. To the Central Railway Company of New Brunswick, for 15 miles of their railway from Chipman station to the Newcastle coal fields, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... $ 48,000

354. To the Tobique Valley Railway Company, for 15 miles of their railway from the present terminus at Plaister Rock easterly, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 48,000

355. Towards the restoration or renewal of the railway bridge on the South-eastern Railway over the Yamaska River at Yamaska, a subsidy equal to one-third of the actual cost of the renewal of the bridge, but the grant not to exceed in the whole..... 50,000

356. To the Boston and Nova Scotia Coal and Railway Company, for 10½ miles of their railway from the north end of the section already subsidized to Broad Cove, a subsidy not exceeding $3,200 per mile; also for 25 miles of their railway from a point on the Cape Breton Railway at or near Orangedale towards Broad Cove, in lieu of the subsidy granted by chapter 5 of 1892, a subsidy not exceeding $3 200 per mile; the whole not exceeding 113,600

357. For a railway from Port Hawkesbury towards Cheticamp, 25 miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 80,000

358. To the Manitoba North-western Railway Company, for 100 miles of the extension of their main line from its present western terminus towards Prince Albert,—the company relinquishing 3,200 acres of the land grant per mile, and the whole road to be operated as a continuous line of railway under one management, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 320,000

359. For a line of railway from the junction of the Elk and Kootenay Rivers to Coal Creek, a distance of 34 miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 108,800

360. For a railway from Abbotsford Station on the Mission Branch of the Canadian Pacific Railway to the town of Chilliwack, 21 miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 67,200

361. To the Nicola Valley Railway Company, for 28 miles of their railway from the western end of the section of their road subsidized by chapter 5, of 1892, towards Nicola Lake, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 89,600

362. To the Nakusp and Slocan Railway Company, for 38 miles of their railway from the town of Nakusp to a point at or near the Forks of Carpenter Creek, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 121,600

363. To the Pontiac and Kingston Railway Company, for 22 miles of a railway from Portage du Fort to Upper Thorne Centre, via Shawville, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 70,400

364. To the New Glasgow Iron, Coal and Railway Company, for 5 miles of their railway, from Sunnybrae to Kerrogare, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole.... 16,000 00

365. To the South Shore Railway Company, for 35 miles of their railway from Yarmouth towards Shelburne and Lockport, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole. 112,000 00

366. To the Cape Breton Railway Extension Company, for 30 miles of railway from Port Hawkesbury to St. Peter's, on their line of railway from Port Hawkesbury to Louisbourg, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000 00

367. For a railway from a point on the Intercolonial Railway between Norton and Sussex Stations towards Havelock, 20 miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole. $ 64,000 00

368. For a railway from St. John to Barneville, for a distance of 10 miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 32,000 00

369. For a line of railway from Cap de la Magdeleine to connect with the Piles Branch of the Canadian Pacific Railway, 3 miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole 9,600 00

370. To the Canada Eastern Railway Company, for an extension of one mile from the western end of their railway, to connect with the Canadian Pacific Railway, a subsidy not exceeding..... ..... 3,200 00

371. To the Great Northern Railway Company, for 30 miles of their railway from its junction with the Lower Laurentian Railway near St. Tite, in the vicinity of the River St. Maurice, westward, in lieu of the subsidy granted to the Maskinongé and Nipissing Railway Company by chapter 2 of 1893, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 96,000 00

372. To the Lindsay, Bobcaygeon and Pontypool Railway Company, for 16 miles of their railway from Bobcaygeon to the Midland Railway, and for another 16 miles from the end of the first mentioned 16 miles to Pontypool, in lieu of the subsidies granted by chapter 2 of 1890, and chapter 5 of 1892, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 102,400 00

373. To the Montfort Colonization Railway Company, for 12 miles of their railway from the end of the 21 miles already subsidized westward to a point on the Rouge River, in the county of Argenteuil, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 38,400 00

374. For a railway from a point on the Caraquet Railway, at or near Pokemouche siding, towards Tracadie village, 12 miles, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole..... 38,400 00

The subsidies hereinbefore mentioned as to be granted to companies named for that purpose shall, if granted by the Governor in Council, be granted to such companies respectively; the other subsidies may be granted to such companies as shall be approved by the Governor in Council as having established to his satisfaction their ability to construct and complete the said railways respectively; all the lines for the construction of which subsidies are granted, unless they are already commenced, shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years, to be fixed by Order in Council, and shall also be constructed according to descriptions and specifications and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railway and Canals, and specified in an agreement to be made in each case by the company with the Government, which agreement the Government is hereby empowered to make; the location also of every such line of railway shall be subject to the approval of the Governor in Council.

The granting of such subsidies respectively shall be subject to such conditions for securing such running powers or traffic arrangements and other rights as will afford all reasonable facilities and equal mileage rates to all railways connecting with those so subsidized, as the Governor in Council determines.

The said subsidies respectively shall be payable out of the Consolidated Revenue Fund of Canada, by instalments, on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister, or upon the completion of the work subsidized,—except as to subsidies with respect to which it is hereinbefore otherwise provided, and except also as to the

subsidy granted to the Great Northern Railway Company by chapter two of 1893, for fifteen miles from Montcalm to the Canadian Pacific Railway, which shall be paid as follows: on the completion of the eighteen miles from New Glasgow to Montcalm and of two miles out of the fifteen miles from Montcalm to the Canadian Pacific Railway, an instalment proportionate to the value of the ten miles out of the total mileage subsidized by chapter two of 1893, to be established as aforesaid, and the balance of the said subsidy on the completion of the remaining thirteen miles of the said railway.

No subsidies were authorized by 58-59 Vict. (1895), nor by 59 Vict. (1896).

By the Act 60-61, chapter 4, 1897 *(Assented to 29th June, 1897).*

1. In this Act, unless the context otherwise requires, the expression "cost" means the actual, necessary and reasonable cost, and includes the amount expended upon any bridge up to and not exceeding twenty-five thousand dollars, forming part of the line of railway subsidized not otherwise receiving any bonus, but shall not include the cost of equipping the railway, nor the cost of terminals and right of way of the railway in any city or incorporated town; and such actual, necessary and reasonable cost shall be determined by the Governor in Council, upon the recommendation of the Minister of Railways and Canals and upon the report of the Chief Engineer of Government Railways, certifying that he has made or caused to be made an inspection of the line of railway for which payment of subsidy is asked, and careful inquiry into the cost thereof, and that in his opinion the amount upon which the subsidy is claimed is reasonable, and does not exceed the true, actual and proper cost of the construction of such railway.

2. The Governor in Council may grant a subsidy of $3,200 per mile towards the construction of each of the undermentioned lines of railway (not exceeding in any case the number of miles hereinafter respectively stated), which shall not cost more on the average than $15,000 per mile for the mileage subsidized, and towards the construction of each of the said lines of railway not exceeding the mileage hereinafter stated, which shall cost more on the average than $15,000 per mile for the mileage subsidized, a further subsidy beyond the sum of $3,200 per mile of fifty per cent on so much of the average cost of the mileage subsidized as is in excess of $15,000 per mile, such subsidy not exceeding in the whole the sum of $6,400 per mile:—

375. To the Ottawa and New York Railway Company, for $53\frac{87}{100}$ miles of their railway from Cornwall to Ottawa, in lieu of the subsidy granted by chapter 5 of the statutes of 1892,

376. To the Kingston, Smith's Falls and Ottawa Railway Company, for 101 miles of their railway from Kingston, or a junction with the Grand Trunk Railway at Rideau or some other point near Kingston, to Ottawa, in lieu of the subsidy granted by chapter 5 of 1892;

377. For a railway from a point on the Canadian Pacific Railway, at or near either Welsford or Westfield, or between the said two points, to Gagetown, in the county of Queen's, New Brunswick, not exceeding 30 miles, in lieu of the subsidy granted by chapter 2 of 1890;

378. To the Cobourg, Northumberland and Pacific Railway Company, for 50 miles of their railway from Cobourg to the Ontario and Quebec Railway, in lieu of the subsidies granted by chapter 5 of 1892;

379. To the Ottawa and Gatineau Railway Company, for 20 miles of their railway from the end of the 62nd mile subsidized towards Désert, in lieu of the subsidies granted by chapter 4 of 1894;

380. To the Great Northern Railway Company, for 9 miles of their railway, being shortage in distance between Montcalm and St. Tite;

381. To the St. Gabriel de Brandon and Ste. Emélie de l'Energie Railway Company, for 15 miles of their railway from St. Gabriel to Ste. Emélie de l'Energie, and 5 miles from a point on the main line to St. Jean de Matha, making in all 20 miles, in lieu of the subsidy granted by chapter 4 of 1894;

382. To the Central Railway Company of New Brunswick, for 15 miles of their railway from Chipman Station to Newcastle Coal Fields, county of Queen's, in lieu of the subsidy granted by chapter 4 of 1894;

383. To the Gulf Shore Railway Company, for 5½ miles of their railway from the end of the section subsidized to Tracadie and thence to Big Tracadie, New Brunswick;

384. For a railway from Campbellton, on the Intercolonial Railway, towards Grand Falls, New Brunswick, a distance of 20 miles, commencing at Campbellton, in lieu of the subsidy granted by chapter 4 of 1894;

385. To the Pontiac Pacific Junction Railway Company, for 7½ miles of their railway from Hull to Aylmer, in lieu of the subsidy granted by chapter 2 of 1890;

386. To the Schomberg and Aurora Railway Company, for 15 miles of their railway from a point on the Grand Trunk Railway between King and Newmarket to Schomberg, in the province of Ontario;

387. To the Tilsonburg, Lake Erie and Pacific Railway Company, for $3\frac{50}{100}$ miles of their railway from the present terminus, through Tilsonburg to the Michigan Central Railway, in the province of Ontario.

388. To the Ottawa, Arnprior and Parry Sound Railway Company, for 52 miles of their railway, from the crossing of the Northern Pacific Junction Railway to 55 miles west of Barry's Bay, and also for 4 miles of their railway across Parry Island;

389. To the Pembroke Southern Railway Company, for 20 miles of their railway from Pembroke to Golden Lake, in the province of Ontario;

390. To the Ontario and Rainy River Railway Company, for 80 miles of their railway from the Port Arthur, Duluth and Western Railway to Rainy Lake, in the province of Ontario;

391. To the Strathroy and Western Counties Railway Company, for 7 miles of their railway, commencing at a point at or near Caradoc Station on the Canadian Pacific Railway and extending to the town of Strathroy;

392. To the Phillipsburg Railway and Quarry Company, for $\frac{66}{100}$ mile of their railway from the end of the subsidized section to the government wharf at Phillipsburg;

393. To the United Counties Railway Company, for 1 mile of their railway from Johnson to St. Grégoire Station, in the province of Quebec;

394. To the St. Lawrence and Adirondack Railway Company, for 13½ miles of their railway from Beauharnois to Caughnawaga, in the province of Quebec;

395. To the East Richelieu Valley Railway Company, for 24 miles of their railway from Iberville to St. Thomas, boundary of Missisquoi County, in the province of Quebec;

396. To the Portage du Fort and Bristol Branch Railway Company, for 15 miles of their railway to a point at or near Shawville, in the county of Pontiac;

397. For a railway from a point at or near Windsor Junction, on the Intercolonial Railway, to Upper Musquodoboit, for a distance of 40 miles;

398. To the St. Stephens and Milltown Railway Company, for $1\frac{14}{100}$ mile of their railway from Milltown to St. Stephen, in the province of New Brunswick;

399. For a railway from Sunny Brae to Country Harbour, and from a point at or near Country Harbour Cross Roads to Guysboro', in the province of Nova Scotia, a distance of 65 miles;

400. For a railway from Port Hawkesbury, Nova Scotia, to Port Hood and Broad Cove, 53 miles, in lieu of the subsidy granted by chapter 4 of 1894;

401. For a railway from a point on the Central Railway in the county of Lunenburg, Nova Scotia, to the town of Liverpool, via the village of Caledonia, or to the village of Caledonia via Liverpool, or for any part thereof, the whole distance not exceeding 62 miles;

402. For a railway from Indian Garden on the line of the Central Railway, to Shelburne, in the province of Nova Scotia, a distance of 35 miles;

403. To the Coast Railway Company of Nova Scotia, for 61 miles of their railway from Yarmouth to Port Clyde, in the province of Nova Scotia;

404. For a railway from Brookfield Station on the Intercolonial Railway to Eastville, 30 miles;

405. To the Great Northern Railway Company, for 35 miles of their railway from St. Jérôme, in the province of Quebec, to Hawkesbury, in the province of Ontario;

406. To the Drummond County Railway Company, for 42½ miles of their railway from Moose Park to Chaudière River, provided that the amount of the said subsidy shall be refunded to the Government of Canada in the event of the company's railway from Ste. Rosalie to Chaudière River being purchased or leased for a term of years by the government.

3. The Governor in Council may grant the subsidies hereinafter mentioned to the railway companies and towards the construction of the railways also hereinafter mentioned, that is to say:—

407. To the Great Northern Railway Company, for 67 miles of their railway between Montcalm and its junction with the Lower Laurentian Railway near St. Tite, in the vicinity of the St. Maurice River, the balance remaining unpaid of the subsidies granted by chapter 2 of 1893, and by chapter 4 of 1894, between these points, a subsidy not exceeding $3,200 per mile, nor exceeding in the whole	$ 182,400 00
408. To the Pontiac Pacific Junction Railway Company, for 85 miles of their railway from Aylmer to Pembroke, also for bridging the Ottawa River, the balance remaining unpaid of the subsidy granted by chapter 8 of 1884, and by chapter 4 of 1894, not exceeding	114,272 00
409. To the Ottawa and Gatineau Railway Company, for 62 miles of their railway from Hull towards Désert, in the province of Quebec, the balance remaining unpaid of the subsidy granted by chapter 2 of 1893, not exceeding in the whole	35,872 00
410. To the Grand Trunk Railway Company of Canada, for a subsidy towards the rebuilding and enlargement of the Victoria Bridge at Montreal over the St. Lawrence River, 15 per cent upon the amount expended thereon, not exceeding	300,000 00
411. To the Montfort Colonization Railway Company, for 33 miles of their railway from Montfort Junction to Arundel, in the province of Quebec, a subsidy not exceeding $2,000 per mile, nor exceeding in the whole	66,000 00
412. To the Irondale, Bancroft and Ottawa Railway Company, the balance remaining unpaid of the subsidy for the last five miles of the company's railway; the eastern terminus to be either at the village of Bancroft or at some point near the Hastings Road, in the township of Herschell, in lieu of the subsidy granted by chapter 2 of 1893, not exceeding in the whole	16,000 00
413. To the Great Northern Railway Company, towards the construction of a railway bridge over the Ottawa River at Hawkesbury, 15 per cent upon the amount expended thereon, not exceeding	52,500 00
414. For a railway and traffic bridge over the Ottawa River at Nepean Point, between the city of Ottawa and the city of Hull, 15 per cent upon the amount expended thereon, not exceeding	112,500 00

4. The subsidies hereinbefore mentioned as to be granted to companies named for that purpose shall, if granted by the Governor in Council, be granted to such companies respectively; the other subsidies may be granted to such companies as are approved by the Governor in Council as having established to his satisfaction their ability to construct and complete the said railways respectively; all the lines for the construction of which subsidies are granted, unless they are already commenced, shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years from the said first day of August, to be fixed by Order in Council, and shall also be constructed according to descriptions and specifications and

upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be made in each case by the company with the Government, which agreement the Government is hereby empowered to make; the location also of every such line of railway shall be subject to the approval of the Governor in Council.

5. The granting of such subsidies respectively shall be subject to such conditions for securing such running powers or traffic arrangements and other rights as will afford all reasonable facilities and equal mileage rates to all railways connecting with those so subsidized, as the Governor in Council determines.

6. The said subsidies respectively shall be payable out of the Consolidated Revenue Fund of Canada, by instalments, on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister, or upon the completion of the work subsidized—except as to subsidies with respect of which it is hereinbefore otherwise provided.

7. Any company receiving a subsidy as aforesaid, in excess of $3,200 per mile, shall be bound to carry Her Majesty's mails for a term of ten years free of charge over the portion of railway subsidized.

By the Special Act 60-61 Victoria, Chapter 5, 1897. *(Assented to 29th June, 1897.)*

1. Subject to the conditions hereinafter mentioned, the Governor in Council may grant to the Canadian Pacific Railway Company a subsidy towards the construction of a railway from Lethbridge, in the district of Alberta, through the Crow's Nest Pass to Nelson, in the province of British Columbia (which railway is hereinafter called "the Crow's Nest Line,") to the extent of eleven thousand dollars per mile thereof, and not exceeding in the whole the sum of three million six hundred and thirty thousand dollars, payable by instalments on the completion of each of the several sections of the said railway of the length respectively of not less than ten miles, and the remainder on the completion of the whole of the said railway; provided that an agreement between the Government and the company is first entered into in such form as the Governor in Council thinks fit, containing covenants to the following effect, that is to say:—

On the part of the company:

(*a*.) That the company will construct or cause to be constructed, the said railway upon such route and according to such descriptions and specifications and within such time or times as are provided for in the said agreement, and, when completed, will operate the said railway for ever;

(*b*.) That the said line of railway shall be constructed through the town of Macleod, and a station shall be established therein, unless the Governor in Council is satisfied by the company that there is good cause for constructing the railway outside the limits of the said town, in which case the said line of railway shall be located and a station established at a distance not greater than five hundred yards from the limits of the said town;

(*c*.) That so soon as the said railway is opened for traffic to Kootenay Lake, the local rates and tolls on the railway and on any other railway used in connection therewith and now or hereafter owned or leased by or operated on account of the company south of the company's main line in British Columbia, as well as the rates and tolls between any point on any such line or lines of railway and any point on the main line of the company throughout Canada, or any other railway owned or leased by or operated on account of the company, including its lines of steamers in British Columbia, shall be first approved by the Governor in Council or by a railway commission, if and when such commission is established by law, and shall at all times thereafter and from time to time be subject to revision and control in the manner aforesaid;

(*d*.) That a reduction shall be made in the general rates and tolls of the company as now charged, or as contained in its present freight tariff, whichever rates are now the lowest, for carloads or otherwise, upon the classes of merchandise hereinafter mentioned, westbound, from and including Fort William and all points east of Fort

William on the company's railway to all points west of Fort William on the company's main line, or on any line of railway throughout Canada owned or leased by or operated on account of the company, whether the shipment is by all rail line or by lake and rail, such reduction to be to the extent of the following percentages respectively, namely :—

Upon all green and fresh fruits, 33⅓ per cent;

Coal oil, 20 per cent;

Cordage and binder twine, 10 per cent;

Agricultural implements of all kinds, set up or in parts, 10 per cent;

Iron, including bar, band, Canada plates, galvanized, sheet, pipe, pipe-fittings, nails, spikes and horse shoes, 10 per cent;

All kinds of wire, 10 per cent;

Window glass, 10 per cent;

Paper for building and roofing purposes, 10 per cent;

Roofing felt, box and packing, 10 per cent;

Paints of all kinds and oils, 10 per cent;

Live stock, 10 per cent;

Wooden ware, 10 per cent;

Household furniture, 10 per cent;

And that no higher rates than such reduced rates or tolls shall be hereafter charged by the company upon any such merchandise carried by the company between the points aforesaid; such reductions to take effect on or before the first of January, one thousand eight hundred and ninety-eight;

(*e.*) That there shall be a reduction in the company's present rates and tolls on grain and flour from all points on its main line, branches or connections, west of Fort William to Fort William and Port Arthur and all points east, of three cents per one hundred pounds, to take effect in the following manner :—One and one-half cent per one hundred pounds on or before the first day of September, one thousand eight hundred and ninety-eight, and an additional one and one-half cent per one hundred pounds on or before the first day of September, one thousand eight hundred and ninety-nine; and that no higher rates than such reduced rates or tolls shall be charged after the dates mentioned on such merchandise from the points aforesaid;

(*f.*) That the Railway Committee of the Privy Council may grant running powers over the said line of railway and all its branches and connections, or any portions thereof, and all lines of railway now or hereafter owned or leased by or operated on account of the company in British Columbia south of the company's main line of railway, and the necessary use of its tracks, stations and station grounds, to any other railway company applying for such grant upon such terms as such committee may fix and determine, and according to the provisions of The Railway Act and of such other general Acts relating to railways as are from time to time passed by Parliament; but nothing herein shall be held to imply that such running powers might not be so granted without the special provision herein contained;

(*g.*) That the said railway, when constructed, together with that portion of the company's railway from Dunmore to Lethbridge, and all lines of railway, branches, connections and extensions in British Columbia south of the main line of the company in British Columbia shall be subject to the provisions of The Railway Act and of such other general Acts relating to railways as are from time to time passed by Parliament;

(*h.*) That if the company or any other company with whom it shall have any arrangement on the subject shall, by constructing the said railway or any part of it, as stipulated for in the said agreement, become entitled to and shall get any land as a subsidy from the Government of British Columbia, then such lands, excepting therefrom those which in the opinion of the Director of the Geological Survey of Canada (expressed in writing) are coal-bearing lands, shall be disposed of by the company or by such other company to the public according to regulations and at prices not exceeding these prescribed from time to time by the Governor in Council, having regard to the then existing provincial regulations applicable thereto; the expression "lands" including all mineral and timber thereon which shall be disposed of as aforesaid, either with or without the land, as the Governor in Council may direct:

(*i.*) That if the company or any other company with whom it shall have any arrangement on the subject shall, by constructing the said railway or any part of it as stipulated for in the said agreement, become entitled to and shall get any lands as a subsidy from the Government of British Columbia which in the opinion of the Director of the Geological Survey of Canada (expressed in writing) are coal-bearing lands, then the company will cause to be conveyed to the Crown, in the interest of Canada, a portion thereof to the extent of fifty thousand acres, the same to be of equal value per acre as coal lands with the residue of such lands. The said fifty thousand acres to be selected by the Government in such fair and equitable manner as may be determined by the Governor in Council, and to be thereafter held or disposed of or otherwise dealt with by the Government as it may think fit on such conditions, if any, as may be prescribed by the Governor in Council, for the purpose of securing a sufficient and suitable supply of coal to the public at reasonable prices, not exceeding two dollars per ton of two thousand pounds free on board cars at the mines.

And on the part of the Government, to pay the said subsidy by instalments as aforesaid.

2. The company shall be bound to carry out in all respects the said agreement, and may do whatever is necessary for that purpose.

3. In order to facilitate such financial arrangements as will enable the company to complete the railway as aforesaid without delay and to acquire and consolidate with it the railway from Dunmore to Lethbridge, hereinafter called "the Alberta Branch," which, under the authority of chapter thirty-eight of the statutes of 1893, it now operates as lessee, and is under covenant to purchase, the company may issue bonds which will be a first lien and charge and be secured exclusively upon the said Alberta Branch and Crow's Nest Line together in the same way and with the same effect as if both the said pieces of railway to be so consolidated were being built by the company as one branch of its railway within the meaning of section one of chapter fifty-one of the statutes of 1888, and that section shall apply accordingly, such first lien to be subject to the payment of the purchase money of the Alberta Branch, as provided for in the said covenant to purchase.

By the Act 62–63 Vic., chapter 7 (*Assented to 11th August, 1899*).

1. In this Act, unless the context otherwise requires, the expression "cost" means the actual, necessary and reasonable cost and shall include the amount expended upon any bridge, up to and not exceeding $25,000, forming part of the line of railway subsidized not otherwise receiving any bonus, but shall not include the cost of equipping the railway, nor the cost of terminals and right of way of the railway in any city or incorporated town; and such actual, necessary and reasonable cost shall be determined by the Governor in Council, upon the recommendation of the Minister of Railways and Canals, and upon the report of the Chief Engineer of Government Railways, certifying that he has made or caused to be made an inspection of the line of railway for which payment of subsidy is asked, and careful inquiry into the cost thereof, and that in his opinion the amount upon which the subsidy is claimed is reasonable, and does not exceed the true, actual and proper cost of the construction of such railway.

2. The Governor in Council may grant a subsidy of $3,200 per mile towards the construction of each of the undermentioned lines of railway (not exceeding in any case the number of miles hereinafter respectively stated) which shall not cost more on the average than $15,000 per mile for the mileage subsidized, and towards the construction of each of the said lines of railway not exceeding the mileage hereinafter stated, which shall cost more on the average than $15,000 per mile for the mileage subsidized, a further subsidy beyond the sum of $3,200 per mile of fifty per cent on so much of the average cost of the mileage subsidized as is in excess of $15,000 per mile, such subsidy not exceeding in the whole the sum of $6,400 per mile:—

415. To the Central Ontario Railway Company, for an extension of their railway from, or from near, either Coe Hill or Rathbun Station on the company's railway to, or near to Bancroft, not exceeding 21 miles, in lieu of the subsidy granted by chapter 5 of 1892;

416. To the Great Northern Railway Company, for a railway between Montcalm and St. Tite Junction, on the Lower Laurentian Railway, Quebec, not exceeding 53½ miles; and for a branch from their main line to Shawenegan Falls, Quebec, not exceeding 6½ miles.

417. To the Phillipsburg Railway and Quarry Company, shortage in the extension of their railway from a point on the company's line at or near the end of the subsidized section, to the government wharf at Phillipsburg, Quebec, not exceeding $\frac{66}{100}$ of a mile;

418. To the Strathroy and Western Counties Railway Company, for a line from Strathroy, Ontario, via Adelaide and Arkona, to either Forest, Tedford, or Park Hill, not exceeding 24 miles, in lieu of the subsidy granted by chapter 4 of 1894;

419. To the St. John Valley and Rivière du Loup Railway Company, for a line of railway from Fredericton, in the county of York, New Brunswick, to Woodstock, in the county of Carleton, not exceeding 59 miles;

420. For a railway from Port Hawkesbury, on the Strait of Canso, Nova Scotia, to St. Peter's, not exceeding thirty miles;

421. For a railway from Windsor, Nova Scotia, to Truro, via the township of Clifton, not exceeding 58 miles, in lieu of the subsidy granted by chapter 4 of 1894;

422. For a railway from a point at or near Brookfield Station, Nova Scotia, on the Intercolonial Railway, to Eastville, not exceeding 25 miles, in lieu of the subsidy granted by chapter 4 of 1897;

423. For a railway from Cross Creek Station, on the Canada Eastern Railway, to Stanley Village, New Brunswick, not exceeding 6 miles;

424. For a railway from the village of St. Rémi to Stottville or some point on the Delaware and Hudson Railway (Grand Trunk) in the parish of St. Paul de l'Ile aux Noix, not exceeding 19 miles;

425. For a railway between Pontypool and Bobcaygeon, via Lindsay, Ontario, not exceeding 40 miles.

426. To the Pontiac Pacific Junction Railway Company, for a railway from Aylmer to Hull, Quebec, not exceeding 9 miles, in lieu of the subsidy granted by chapter 4 of 1897;

427. To the Portage du Fort and Bristol Branch Railway Company, for a branch line from a point on the Pontiac Pacific Junction Railway at or near the village of Quyon, towards the village of Portage du Fort, Quebec, not exceeding 15 miles, in lieu of the subsidy granted by chapter 4 of 1897;

428. To the Orford Mountain Railway Company, for a branch from their railway from a point between Lawrenceville and Eastman to Waterloo, not exceeding 13 miles;

429. To the Atlantic and Lake Superior Railway Company, for an extension of their railway from Caplin to Paspebiac, Quebec, not exceeding 30 miles;

430. To the United Counties Railway Company, for a railway from St. Robert Junction to Sorel, 6½ miles, (this sudsidy to be payable only in the event of adequate running rights over the South-eastern Railway between the two points above mentioned not being granted to the first mentioned Company on terms to be approved by the Railway Committee of the Privy Council,) and from Mount Johnson to St. Grégoire Station, 1 mile, not exceeding 7½ miles.

431. For a railway from a point on the Central Railway in the county of Lunenburg, Nova Scotia, to the town of Liverpool, via the village of Caledonia, or to the village of Caledonia, via Liverpool, or for any part thereof, the whole distance not exceeding 62 miles;

432. For a railway from Indian Gardens, Queen's County, Nova Scotia, to Shelburne, in the said province, a distance of 35 miles;

433. The subsidy which the Ontario and Rainy River Railway Company is entitled to receive under chapter 4 of 1897, shall be $6,400 per mile for the 80 miles mentioned in the said Act; not exceeding in all $512,000.

434. To the Bay of Quinté Railway Company, for such extensions, branches or additions to their system as will enable the said Company to connect their lines of railway or connecting lines with iron or other mines or mineral or wood lands in the counties of Peterborough, Northumberland, Hastings, Lennox and Addington, Frontenac or Leeds, payable in instalments regulated by the length of each of the said extensions or branches or additions, as the case may be, in lieu of part of the balance remaining unpaid of the subsidy granted to the Kingston, Napanee and Western Railway Company, by chapter 5 of 1892, but not exceeding $3,200 per mile for 10 miles, nor exceeding in the whole $32,000;

435. To the Quebec and Lake St. John Railway Company, for 12 miles of their railway from the end of their line at deep water on the Chicoutimi branch of their railway, to Ha Ha Bay, in the lieu of the subsidy for the 12 miles granted by chapter 4 of 1894;

436. For a line of railway from Hawkesbury, Ontario, to South Indian, not exceeding 35 miles;

437. For a railway from Sault Ste. Marie, Ontario, towards Michipicoten River and harbour and towards the main line of the Canadian Pacific Railway, not exceeding 40 miles;

438. For a branch line of railway from the main line of the Ottawa, Arnprior and Parry Sound Railway to the town of Parry Sound, Ontario, not exceeding 5 miles;

439. For a railway from the village of Haliburton, via the village of Whitney, towards the town of Mattawa, Ontario, not exceeding 20 miles;

440. For an extension of the Tilsonburg, Lake Erie and Pacific Railway, from Tilsonburg to Ingersoll or Woodstock, Ontario, not exceeding 28 miles;

441. To the South Shore Railway Company, from Sorel Junction along the South Shore to Lotbinière, Quebec, a distance not exceeding 82 miles;

442. To the Massawippi Valley Railway Company for an extension of their railway to the village of Stanstead Plain, Quebec, not exceeding 2½ miles;

443. For a railway from Port Hawkesbury on the Strait of Canso, to Caribou Cove, Nova Scotia, a distance of 10 miles;

444. For a railway from Fort Frances, Ontario, westerly to a point at or near the mouth of Rainy River, a distance not exceeding 70 miles;

445. To the Central Railway Company of New Brunswick, for an extension of their line of railway from Newcastle Coal Fields to Gibson, New Brunswick, not exceeding 30 miles;

446. To the Canadian Northern Railway Company, for a railway from a point on the present line of the Winnipeg Great Northern Railway north of Swan River to Prince Albert, North-west Territories, not exceeding 100 miles;

447. For a railway from some point near Antler Station to a point near Moose Mountain, Manitoba, not exceeding 50 miles;

448. For a railway from Sunnybrae to Country Harbour, and from a point at or near Country Harbour Cross Roads to Guysborough, Nova Scotia, to make up the deficiency in mileage between points mentioned and subsidized by chapter 4 of 1897, additional mileage not exceeding 15 miles;

449. For a railway from Port Clyde towards Lockeport, in the province of Nova Scotia, not exceeding 20 miles;

450. For a railway from a point on the Intercolonial Railway at or near Halifax towards the Central Railway in the county of Lunenburg, not exceeding 20 miles;

451. For a railway from Labelle, in the province of Quebec, in a north-westerly direction, to Nominingue, via Notre Dame de l'Annonciation, a distance not exceeding 22 miles;

452. For a railway from Owen Sound, in the province of Ontario, to Meaford, not exceeding 21 miles;

453. To the Ottawa and Gatineau Railway Company, for their line of railway in and through the city of Hull, Quebec, not exceeding 4 miles;

454. To the Western Alberta Railway Company, from a point on the United States boundary, west of Range 27, north-westerly towards Anthracite, in the district of Alberta, not exceeding 50 miles ;

455. To the Edmonton, Yukon and Pacific Railway Company, for a railway from the town of South Edmonton, North-west Territories, to North Edmonton, and thence westerly towards the Yellow Head Pass, a distance not exceeding 50 miles ;

456. To the Restigouche and Western Railway Company, in addition to the 20 miles subsidized by chapter 4 of 1897, and in continuation from the westerly end of the said 20 miles towards the St. John River, a further distance not exceeding 15 miles, and for the company's railway from a point on the St. John River, New Brunswick, at or near Grand Falls, or St. Leonard, or between Grand Falls and St. Leonard, and extending easterly towards Campbellton, such point to be approved by the Governor in Council, a distance of 12 miles ; in all not exceeding 27 miles ;

457. For a railway in extension of the St. Francis branch of the Temiscouata Railway to the mouth of the St. Francis River, a distance not exceeding 3 miles ;

458. To the Canada Eastern Railway Company, for a line of railway from Nelson, New Brunswick, to connect with the company's main line running into Chatham, to complete the connection from Nelson to such main line, not exceeding in the whole 2¼ miles ;

459 To the Bay of Quinté Railway Company, for an extension of their line in a westerly direction from a point at or near Richmond boundary road near Deseronto for a distance not exceeding 2 miles ; also for an extension of their line from its present terminus at Tweed in a northerly direction for a distance of 2 miles, and for an extension of their line from the end of the last 2 miles mentioned in a northerly direction for a distance not exceeding 3 miles—in all 7 miles ; subsidies payable on each of the sections mentioned as each of such sections is completed ;

460. To the Ontario, Belmont and Northern Railway Company, for an extension of their railway from its present terminus at Iron Mines in a north-westerly direction, a distance not exceeding 5 miles ; and also for an extension of the company's railway southerly, from the present southern terminus thereof to the Central Ontario Junction of the Canadian Pacific Railway, a distance not exceeding 2 miles ; but the last mentioned aid for the said 2 miles of railway shall not be granted in case the Railway Committee of the Privy Council finds that adequate running powers on fair terms can be secured to the company over that portion of the line of the Central Ontario Railway between the present southerly end of the Ontario, Belmont and Northern Railway and the Canadian Pacific Railway Company's line at Central Ontario Junction ; subsidies payable on each of the sections mentioned as each of such sections is completed ;

461. For a line of railway from a point on the Pembroke Southern Railway at or near Golden Lake, Ontario, towards a point on the Irondale, Bancroft and Ottawa Railway at or near Bancroft, not exceeding 20 miles ;

462. For a line of railway from Paspebiac, Quebec, to Gaspé in the said province, a distance not exceeding 82 miles ;

463. To the Lake Erie and Detroit River Railway Company, for a line of railway from Ridgetown, Ontario, to St. Thomas, in the said province, a distance not exceeding 44 miles ; this subsidy to be payable only in the event of adequate running rights over the Canada Southern Railway between the two points above mentioned not being granted to the first mentioned company on terms to be approved by the Railway Committee of the Privy Council ;

464. To the Kingston and Pembroke Railway Company, for the construction of branches from the Company's main line to the iron mine at Bluff Point and to the Martele mine in the county of Renfrew, not exceeding 5 miles ;

465. For a railway from the town of Parry Sound extending northerly towards Sudbury, a distance not exceeding 20 miles.

3. The Governor in Council may grant the subsidies hereinafter mentioned towards the construction of the railways also hereinafter mentioned, that is to say :—

466. The Ontario and Rainy River Railway Company, for a railway from a point 80 miles west of Stanley Station, on the Port Arthur, Duluth and Western Railway, to Fort Frances, for a distance of 140 miles, at $6,400 per mile, not exceeding in the whole	$ 896,000 00
467. To the Quebec Bridge Company, towards the construction of a railway bridge over the St. Lawrence River, at Chaudière Basin, near Quebec, one million dollars, 40 per cent of which amount may be paid on monthly progress estimates, approved by the Government engineers, of materials delivered and work done...	1,000,000 00
468. To the South Shore Railway Company, towards the restoration and renewal of the railway bridge over the Yamaska River at Yamaska, Quebec	50,000 00
469. Towards the construction of a bridge over the Richelieu River at Sorel, 15 per cent upon the amount expended thereon, not exceeding	35,000 00
470. Towards the construction of a bridge across the St. Francis River, 15 per cent of the amount expended thereon, not exceeding...	50,000 00
471. Towards the construction of a bridge across the Nicolet River, 15 per cent upon the amount expended thereon, not exceeding....	15,000 00
472. To the Midland Railway Company, Limited, towards the construction of a bridge across the Shubenacadie River, 15 per cent upon the amount expended thereon, not exceeding	33,750 00
473. To the Great Northern Railway Company, towards the construction of a bridge across the St. Maurice River, 15 per cent upon the amount expended thereon, not exceeding	16,425 00
474. Also towards the construction of a bridge across the Rivière du Loup, 15 per cent upon the amount expended thereon, not exceeding	15,000 00
475. Also towards the construction of a steel bridge and viaduct at the Maskinongé River, 15 per cent upon the amount expended thereon, not exceeding	15,000 00

4. The subsidies granted to the Ontario and Rainy River Railway Company, the Canadian Northern Railway Company and the Edmonton, Yukon and Pacific Railway Company are granted upon the condition, and, if received and paid under the authority of this Act to the above mentioned companies respectively, shall be received upon the condition, that the said companies shall not, nor shall any of them, at any time amalgamate with, or lease its line or lines to, any railway company other than those mentioned in this section, except as may be authorized by Parliament; nor shall any of the said railways be leased to or operated by any other company; nor shall any of the said companies make an agreement for a common fund or for pooling its receipts with any other railway company; and any such lease, amalgamation or agreement shall be absolutely void, excepting in so far as such agreement may extend to traffic or running arrangements which have been approved by the Governor in Council.

5. The subsidies hereinbefore mentioned as to be granted to companies named for that purpose shall, if granted by the Governor in Council, be granted to such companies respectively; the other subsidies may be granted to such companies as are approved by the Governor in Council as having established to his satisfaction their ability to construct and complete the said railways respectively; all the lines for the construction of

which subsidies are granted, unless they are already commenced, shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years from the said first day of August, to be fixed by Order in Council, and shall also be constructed according to descriptions and specifications and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be made in each case by the company with the Government, which agreement the Government is hereby empowered to make; the location also of every such line of railway shall be subject to the approval of the Governor in Council.

6. The granting of such subsidies, and the receipt thereof by the respective companies, shall be subject to the condition that the Governor in Council may at all times provide and secure to other companies such running powers, traffic arrangements and other rights as will afford to all railways connecting with those so subsidized reasonable and proper facilities in exercising such running powers, fair and reasonable traffic arrangements with connecting companies, and equal mileage rates between all such connecting railways; and the Governor in Council shall have absolute control at all times over the rates and tolls to be levied and imposed by any of the companies or upon any of the railways hereby subsidized.

7. The said subsidies respectively shall be payable out of the Consolidated Revenue Fund of Canada, by instalments, on the completion of each section of the railway of not less than ten miles, proportionate to the value of the portion so completed in comparison with that of the whole work undertaken, to be established by the report of the said Minister, or upon the completion of the work subsidized—except as to subsidies with respect to which it is hereinbefore otherwise provided.

8. Every company receiving a subsidy under this Act, its successors or assigns, and any person or company controlling or operating the railway or portion of railway subsidized under this Act, shall each year furnish to the Government of Canada transportation for men, supplies, material and mails over the portion of its line in respect of which it has received such subsidy, and, whenever required, shall furnish mail cars, properly equipped, for such mail service; and such transportation and service shall be performed at such rates as are agreed upon between the Minister of the department of the Government for which such service is being performed and the company performing it, and in case of disagreement, then at such rates as are approved by the Governor in Council; and in or towards payment for such charges the Government of Canada shall be credited by the company with a sum equal to three per cent per annum on the amount of subsidy received by the company under this Act.

9. As respects all railways for which subsidies are granted by this Act, the company at any time owning or operating any of the said railways shall, when required, produce and exhibit to the Minister of Railways and Canals, or any person appointed by him, all books, accounts and vouchers showing the cost of constructing the railway, the cost of operating it, and the earnings thereof.

By the Act 63-64 Vic., chapter 8 (*Assented to July 18, 1900*).

1. In this Act, unless the context otherwise requires, the expression 'cost' means the actual, necessary and reasonable cost and shall include the amonnt expended upon any bridge, up to and not exceeding $25,000, forming part of the line of railway subsidized not otherwise receiving any bonus, but shall not include the cost of equipping the railway nor the cost of terminals and right of way of the railway in any city or incorporated town; and such actual, necessary and reasonable cost shall be determined by the Governor in Council, upon the recommendation of the Minister of Railways and Canals, and upon the report of the Chief Engineer of Government Railways, certifying that he has made or caused to be made an inspection of the line of railway for which payment of subsidy is asked, and careful inquiry into the cost thereof, and that in his

opinion the amount upon which the subsidy is claimed is reasonable, and does not exceed the true, actual and proper cost of the construction of such railway.

2. The Governor in Council may grant a subsidy of $3,200 per mile towards the construction of each of the undermentioned lines of railway (not exceeding in any case the number of miles hereinafter respectively stated) which shall not cost more on the average than $15,000 per mile for the mileage subsidized, and towards the construction of each of the said lines of railway not exceeding the mileage hereinafter stated, which shall cost more on the average than $15,000 per mile for the mileage subsidized, a further subsidy beyond the sum of $3,200 per mile of fifty per cent on so much of the average cost of the mileage subsidized as is in excess of $15,000 per mile, such subsidy not exceeding in the whole the sum of $6,400 per mile :—

476. For a railway from a point at or near the junction of the Irondale, Bancroft and Ottawa Railway and the Grand Trunk Railway to the village of Minden, in the county of Haliburton, Ontario, not exceeding 12 miles.

477. To the Strathroy and Western Counties Railway Company, for a railway commencing at a point at or near Caradoc station, on the Canadian Pacific Railway, and extending to the town of Strathroy, Ontario, not exceeding 7 miles.

478. For a line of railway from a point on the Pembroke Southern Railway at or near Golden Lake, towards a point on the Irondale, Bancroft and Ottawa Railway at or near Bancroft, Ontario, for the further extension of such railway westerly from the western terminus of the 20 miles subsidized by chapter 4 of 1897, for a distance not exceeding 20 miles.

479. To the Algoma Central Railway Company for 25 miles of its line of railway from its terminus at Michipicoten Harbour, Lake Superior, towards the main line of the Canadian Pacific Railway, and for a further extension of this company's line of railway from Sault Ste. Marie towards Michipicoten River and Harbour, Ontario, towards the main line of the Canadian Pacific Railway, 25 miles in all, not exceeding 50 miles.

480. To the Central Ontario Railway Company, for a further extension of their railway from, at or near Bancroft to a point on the Canada Atlantic Railway between Whitney and Barry's Bay, Ontario, not exceeding 20 miles.

481. To the Manitoulin and North Shore Railway Company, for a line of railway between Little Current, on Manitoulin Island, and Sudbury, Ontario, on the Canadian Pacific Railway, the company undertaking to bridge between Little Current and the main land, the bridge to be so constructed and maintained as to afford suitable facilities, in the opinion of the Minister of Railways and Canals, for free vehicular and passenger traffic, the same as upon a public highway, the work to be begun and prosecuted from Little Current and Sudbury, one-half of the subsidy to be applicable, as earned, in respect of the work beginning at Little Current and carried on towards Sudbury, and one-half thereof to be applicable, as earned, in respect of the work beginning at Sudbury and carried on towards Little Current, the course of the line of railway to cross the Sault Ste. Marie branch of the Canadian Pacific Railway, not exceeding 66 miles.

482. For a railway from Bracebridge, in Muskoka, to a point at or near Baysville, Ontario, not exceeding 15 miles.

483. For a railway beginning at a point northerly 20 miles from Parry Sound, and extending from that point to the French River, Ontario, not exceeding 35 miles.

484. For a railway from a point 20 miles north-easterly from the village of Haliburton, via the village of Whitney, towards the village of Mattawa, Ontario, not exceeding 40 miles.

485. To the Kingston and Pembroke Railway Company, for a branch line of railway to iron mines in Bedford township, Ontario, not exceeding 12 miles.

486. To the Thousand Islands Railway Company for an extension of their railway from the present northerly terminus to a point easterly thereof, not exceeding 2 miles;

And also for an extension from a point on the railway to connect their railway with the Brockville, Westport and Sault Ste. Marie Railway, the Bay of Quinté Railway, the Kingston, Smith's Falls and Ottawa Railway, or the waters of the Rideau Canal, the balance remaining of the subsidy granted by chapter 5 of 1892, not exceeding 9½ miles.

487. For a railway from Dyment, on the Canadian Pacific Railway, to the New Klondike mining district, Ontario, not exceeding 7 miles.

488. To the Schomberg and Aurora Railway Company, for an extension of their line from its easterly terminus to a point at or near Bond's Lake, Ontario, not exceeding 4 miles.

489. To the Nipissing and James Bay Railway Company, for a railway from, at or near North Bay station, on the Canadian Pacific Railway, towards James Bay, or Lake Tamagaming, Ontario, not exceeding 20 miles.

490. In aid of the Ottawa and New York Railway Company's bridge over the St. Lawrence River, and for the Canadian portion of such bridge, a sum not exceeding $90,000.

491. To the Grand Trunk Railway Company of Canada, towards the cost of the rebuilding and enlargement of the Victoria Bridge over the St. Lawrence River, Quebec, in addition to the amount received by the company on account of the subsidy granted by chapter 4 of 1897, viz: $270,000, to make up the grant in aid of the undertaking to $500,000, upon condition that the tolls upon the bridge for passenger and vehicular traffic shall be subject to the approval of the Governor in Council, a sum not exceeding $230,000.

492. For a railway and traffic bridge over the Ottawa River at Nepean Point, between the city of Ottawa, Ontario, and the city of Hull, Quebec, upon condition that the bridge be so constructed as to provide suitable facilities, to the satisfaction of the Minister of Railways and Canals, for free vehicular and foot passenger traffic, the same as upon a public highway, in addition to the $112,500 already granted,—and, notwithstanding anything in the said Act, the subsidy hereby granted, together with the grant of $112,500 under chapter 4 of 1897, shall be paid upon the completion of the bridge and its approaches, upon the Chief Engineer's report of such completion, and the recommendation of the Minister,—a sum not exceeding $100,000.

493. To the Canadian Northern Railway Company, in further extension of their railway north of Swan River towards Prince Albert, North-west Territories, in addition to the grant by chapter 7 of 1899, a further mileage not exceeding 100 miles.

494. For a railway from the westerly end of the Waskada branch of the Canadian Pacific Railway, Manitoba, further westward, not exceeding 20 miles.

495. For a railway from a point on the Alberta Railway and Coal Company's Railway towards Cardston, Alberta, N.W.T., for 30 miles of railway at $2,500 per mile.

496. To the Kaslo and Lardo-Duncan Railway Company, for a railway from Duncan Lake towards Lardo or Arrow Lake, British Columbia, or from Lardo to Arrow Lake, not exceeding 30 miles.

497. To the Restigouche and Western Railway Company, for the company's railway, in addition to the 15 miles subsidized by chapter 7 of 1899, on the easterly section of the line, and in continuation from the westerly end of the said 15 miles, a further distance of 15 miles towards the St. John River; and for the said railway, in addition to the 12 miles subsidized by the said chapter on the westerly section of the said line, a further distance from the easterly end thereof of 15 miles, towards Campbellton, N.B., not exceeding 30 miles.

498. For a line of railway from St. Charles Junction on the Intercolonial Railway towards the St. Francis branch of the Temiscouata Railway, Quebec, not exceeding 45 miles, and from the mouth of the St. Francis River, N.B., westerly towards St. Charles Junction, 15 miles, in all not exceeding 60 miles.

499. For a line of railway from Bristol, in the county of Carleton, New Brunswick, on the Canadian Pacific Railway, easterly, a distance not exceeding 17 miles.

500. For a line of railway from Shediac, county of Westmorland, New Brunswick, to Shemogue, and towards Cape Tormentine, in the said county, a distance not exceeding 38 miles.

501. For a railway from Lockeport, Nova Scotia, to Sable River, or other convenient point of railway connection, not exceeding 20 miles.

502. To the Inverness and Richmond Railway Company, for a railway in extension of the company's line northward from Broad Cove to Cheticamp, C.B., Nova Scotia, not exceeding 40 miles.

503. For a railway from Bridgetown to Victoria Beach, Nova Scotia, not exceeding 30 miles.

504. For a railway from a point on the Intercolonial Railway, Pictou branch, to Kempt Town, county of Colchester, Nova Scotia, not exceeding 4½ miles.

505. For a railway from Brazil Lake, on the Dominion Atlantic Railway, to Kemptville, Nova Scotia, not exceeding 11 miles.

506. To the Montfort and Gatineau Colonization Railway Company, to enable it to extend its railway from Arundel to a point in the municipality of the united townships of Preston and Hartwell, province of Quebec, not exceeding 30 miles.

507. To the Chateauguay and Northern Railway Company, for a railway from a point in Hochelaga ward, Montreal, to a point on the Great Northern Railway, in or near the town of Joliette, passing near the town of L'Assomption, Quebec, together with a spur into the said town, not exceeding 42 miles.

508. To the Chateauguay and Northern Railway Company, for a single-track standard railway bridge, with two roadways 10 feet wide, for free vehicular and foot passenger traffic, the same as upon a public highway, from Bout L'Isle to Charlemange, at the junction of the Ottawa and St. Lawrence rivers, $150,000.

509. To the Chateauguay and Northern Railway Company, towards the construction of a bridge across the Lac Ouareau River, $15,000.

510. To the Arthabaska Railway Company, for a railway from Victoriaville to West Chester, province of Quebec, a distance not exceeding 12 miles.

511. To the Great Northern Railway Company, for a branch line from the town or from near the town of Joliette towards Ste. Emélie, touching the parishes of Ste. Beatrix and Ste. Jean de Matha, not exceeding 20 miles.

512. For a railway from Farnham, province of Quebec, to Frelighsburg and the International Boundary Line, not exceeding 21 miles.

513. Towards the construction of a railway bridge over the St. Francis River, in lieu of the grant under chapter 7 of 1899, at St. François du Lac, on the condition that the bridge, with approaches, be built so as to allow the municipalities to make use thereof, to establish and maintain a suitable roadway for the free passage of foot passengers, vehicles and animals, to be approved by the Minister of Railways and Canals, $50,000.

514. Towards the construction of a railway bridge over the Nicolet River at Nicolet, in lieu of the grant under chapter 7 of 1899, $15,000.

515. For a line of railway from Halifax towards a point on the Central Railway of Nova Scotia, in the county of Lunenburg, in addition to and in extension of the 20 miles subsidized by chapter 7 of 1899, not exceeding 20 miles.

3. The subsidies hereby granted and any subsidies heretofore granted under any Act of the Parliament of Canada, still in force, but not fully paid, towards the construction of any railway or bridge, shall be payable out of the Consolidated Revenue Fund of Canada, and may, unless in this Act otherwise expressly provided, at the option of the Governor in Council, on the report of the Minister of Railways and Canals, be paid as follows:

(*a*) upon the completion of the work subsidized; or

(*b*.) by instalments on the completion of each ten-mile section of the railway, in the proportion which the cost of such completed section bears to that of the whole work undertaken · or

(*c.*) upon progress estimates on the certificate of the Chief Engineer of Railways and Canals, that in his opinion, having regard to the whole work undertaken and the aid granted, the progress made justifies the payment of a sum not less than sixty thousand dollars; or

(*d.*) with respect to (*b*) and (*c*), part one way, part the other.

4. The subsidies hereinbefore mentioned as to be granted to companies named for that purpose shall, if granted by the Governor in Council, be granted to such companies respectively; the other subsidies may be granted to such companies as are approved by the Governor in Council as having established to his satisfaction their ability to construct and complete the said railways respectively; all the lines for the construction of which subsidies are granted, unless they are already commenced, shall be commenced within two years from the first day of August next, and completed within a reasonable time, not to exceed four years from the said first day of August, to be fixed by Order in Council, and shall also be constructed according to descriptions and specifications and upon conditions to be approved by the Governor in Council, on the report of the Minister of Railways and Canals, and specified in an agreement to be made in each case by the company with the government, which agreement the government is hereby empowered to make; the location also of every such line of railway shall be subject to the approval of the Governor in Council.

5. The granting of such subsidies, and the receipt thereof by the respective companies, shall be subject to the condition that the Governor in Council may at all times provide and secure to other companies such running powers, traffic arrangements and other rights as will afford to all railways connecting with those so subsidized reasonable and proper facilities in exercising such running powers, fair and reasonable traffic arrangements with connecting companies, and equal mileage rates between all such connecting railways; and the Governor in Council shall have absolute control at all times over the rates and tolls to be levied and imposed by any of the companies or upon any of the railways hereby subsidized.

6. The Governor in Council may make it a condition of the subsidies hereby granted, or of any heretofore granted by any Act of Parliament as to which a contract has not yet been entered into between Her Majesty and the company for the construction of the railway, that the company shall lay its road with new steel rails made in Canada, if such rails are procurable in Canada of suitable quality upon terms as favourable as other rails can be obtained upon, of which the Minister of Railways and Canals shall be the judge.

7. Every company receiving a subsidy under this Act, its successors or assigns, and any person or company controlling or operating the railway or portion of railway subsidized under this Act, shall each year furnish to the government of Canada transportation for men, supplies, material and mails over the portion of its line in respect of which it has received such subsidy, and, whenever required, shall furnish mail cars, properly equipped, for such mail service; and such transportation and service shall be performed at such rates as are agreed upon between the minister of the department of the government for which such service is being performed and the company performing it, and in case of disagreement then at such rates as are approved by the Governor in Council; and in or towards payment for such charges the government of Canada shall be credited by the company with a sum equal to three per cent per annum on the amount of subsidy received by the company under this Act.

8. As respects all railways for which subsidies are granted by this Act, the company at any time owning or operating any of the said railways shall, when required, produce and exhibit to the Minister of Railways and Canals, or any person appointed by him, all books, accounts and vouchers showing the cost of constructing the railway, the cost of operating it, and the earnings thereof.

9. Paragraph 20 of section 2 of chapter 7 of the statutes of 1899 is amended by inserting after the word 'railway,' in the third line, the words 'or to connect the said lines.'

10. The subsidy provided for by chapter 7 of the statutes of 1899 towards the construction of a railway bridge over the St. Lawrence River at Chaudière Basin, near Quebec, shall be deemed to be applicable, as to one-third thereof, to the substructure and approaches, and as to two-thirds thereof to the superstructure, and the said subsidy may be paid upon that basis by authority of the Governor in Council, upon progress estimates to be furnished from time to time by the Chief Engineer of Government Railways and Canals, so that one-third of such subsidy, and no more, may be paid in respect of and upon completion of the masonry of the substructure and approaches of the said bridge, one-third, and no more, upon the work and material of one-half of the superstructure being done and supplied, in respect of such work and material, and the remaing one-third upon the completion of the whole work.

By the Act 1st Edward VII., chapter 7 (*Assented to May 23, 1901.*)

1. In this Act, unless the context otherwise requires, the expression 'cost' means the actual, necessary and reasonable cost, and shall include the amount expended upon any bridge, up to and not exceeding $25,000, forming part of the line of railway subsidized not otherwise receiving any bonus, but shall not include the cost of terminals and right of way of the railway in any city or incorporated town; and such actual, necessary and reasonable cost shall be determined by the Governor in Council, upon the recommendation of the Minister of Railways and Canals, and upon the report of the Chief Engineer of Government Railways, certifying that he has made or caused to be made an inspection of the line of railway for which payment of subsidy is asked, and careful inquiry into the cost thereof, and that in his opinion the amount upon which the subsidy is claimed is reasonable, and does not exceed the true, actual and proper cost of the construction of such railway.

2. The Governor in Council may grant a subsidy of $3,200 per mile towards the construction of each of the undermentioned lines of railway (not exceeding in any case the number of miles hereinafter respectively stated) which shall not cost more on the average than $15,000 per mile for the mileage subsidized, and towards the construction of each of the said lines of railway not exceeding the mileage hereinafter stated, which shall cost more on the average than $15,000 per mile for the mileage subsidized, a further subsidy beyond the sum of $3,200 per mile of fifty per cent on so much of the average cost of the mileage subsidized as is in excess of $15,000 per mile, such subsidy not exceeding in the whole the sum of $6,400 per mile;—

516. For a line of railway from a point on the Intercolonial Railway at or near New Glasgow to Country Harbour, Nova Scotia, and from a point at or near Country Harbour Cross Roads to Guysborough, in lieu of the subsidies granted by 1897, cap. 4, and 1899, cap. 7, sec. 2, paragraph 34, not exceeding 80 miles.

517. To the Quebec and New Brunswick Railway Company, for a line of railway from a point at or near St. Charles or at or near Chaudière Junction or a point on the Quebec Central Railway, near St. Anselme, Quebec, towards the present terminus of the St. Francis Branch of the Témiscouata Railway, New Brunswick, not exceeding 45 miles, and for a line of railway from the mouth of the St. Francis River, New Brunswick, westerly towards Chaudière Junction, not exceeding 15 miles, in lieu of the subsidy granted by 1900, cap, 8, sec. 2, paragraph 23; also for a line of railway in extension of the St. Francis Branch of the Témiscouata Railway to the mouth of the St. Francis River, New Brunswick, in lieu of the subsidy granted by 1899, cap. 7, sec. 2, paragraph 43, not exceeding 3 miles; in all not exceeding 63 miles.

518. To the Montreal and Province Line Railway Company, for a line of railway from Farnham, Quebec, to Frelighsburg, in lieu of the subsidy granted by 1900, cap. 8, sec. 2, paragraph 37, not exceeding 19 miles.

519. For a line of railway from a point on the Intercolonial Railway at or near Windsor Junction to Upper Musquodoboit, in lieu of 1897, cap. 4, sec. 2, paragraph 23, not exceeding 40 miles.

520. For a line of railway from Pubnico, Nova Scotia, to Port Clyde or Clyde River, in lieu of the unexpended balance of subsidy granted by 1897, cap. 4, sec. 2, paragraph 29, not exceeding 31 miles.

521. To the Toronto, Lindsay and Pembroke Railway Company, for a line of railway from the western terminus of the 20 miles subsidized by 1899, cap. 7, sec. 2, paragraph 47, westerly towards Bancroft, not exceeding 20 miles, in lieu of the subsidy granted by 1900, cap. 8, sec., 2 paragraph 3; also from the terminus of previously subsidized lines at a point about 40 miles west of Golden Lake, westerly to Bancroft, not exceeding 11 miles; in all not exceeding 31 miles.

522. For a line of railway from Chipman Station, New Brunswick, to Gibson, in lieu of the subsidies granted by 1897, cap. 4, and 1899, cap. 7, sec. 2, paragraph 31, not exceeding 45 miles.

523. To the Inverness and Richmond Railway Company, for a line of railway from a point at or near Point Tupper on the Intercolonial Railway, to Broad Cove and Cheticamp, Nova Scotia, in lieu of the subsidies granted by 1897, cap. 4, 1899, cap. 7, sec. 2, paragraph 29, and 1900, cap. 8, sec. 2, paragraph 27, not exceeding 98 miles.

524. For a line of railway from Caplin to Paspebiac, Quebec, in lieu of the subsidy granted by 1899, cap. 7, sec. 2, paragraph 15, the subsidy contract to be entered into with the trustees or receivers under mortgage from the Atlantic and Lake Superior Railway Company, and to contain the conditions that the subsidy when earned shall be paid in the following manner:—

1st. To the Hamilton Bridge Works Company in payment for bridge superstructures on the said section of railway, when furnished and erected by that company, not to exceed $35,000;

2nd. For the completion of the road-bed and works incidental thereto;

3rd. Towards payment of overdue balances, pro rata, in settlement of claims for labour, boarding-house claims, and material and supplies furnished in connection with the construction of the said section of railway; in all not exceeding 30 miles.

525. To the Schomberg and Aurora Railway Company, for a line of railway from a point on the Grand Trunk Railway between King and Newmarket, Ontario, to Schomberg, in lieu of the subsidy granted by 1897, cap. 4, not exceeding 15 miles.

526. To the Ottawa and Gatineau Railway Company, for a line of railway from the end of the 62nd mile subsidized, towards Désert, in lieu of the subsidy granted by 1897, cap. 4, sec. 2, paragraph 5, not exceeding 20 miles.

527. To the Restigouche and Western Railway Company, for its line of railway from Campbellton on the Intercolonial Railway, New Brunswick, towards Grand Falls, in lieu of the subsidy granted by 1897, cap. 4, sec. 2, paragraph 10, not exceeding 20 miles.

528. To the Pontiac Pacific Junction Railway Company, for 36 miles of its railway from a point at or near Shawville, crossing the Ottawa River via Calumet Island to Pembroke, including the bridging of both channels of the Ottawa River at Calumet Island, 14 miles of which shall be in lieu of the unexpended balance of subsidy granted by 1897, cap. 4, sec. 3, paragraph 2, not exceeding $115,200.

529 To the Manitoulin and North Shore Railway Company, for its line of railway, from a point on its line of railway between Sudbury and Little Current to its junction with the line of the Algoma Central and Hudson Bay Railway, at or

near Goulais River, in addition to and in further extension of its railway subsidized by 1900, cap. 8, sec. 2, paragraph 6, an additional mileage not exceeding 130 miles.

530. For a line of railway from Grandique Ferry, Nova Scotia, to Arichat, not exceeding 8 miles.

531. To the Central Ontario Railway Company, for a further extension of its line of railway, subsidized by 1900, cap. 8, sec. 2, paragraph 5, northward, to a junction with the Canada Atlantic Railway, at or near Whitney, Ontario, not exceeding 20 miles.

532. To the Kingston and Pembroke Railway Company, for a line of railway from a point at or near Sharbot Lake, Ontario, via Lanark, to Carelton Place, not exceeding 41 miles.

533. To the Norwood and Apsley Railway Company, for a line of railway from Norwood, Ontario, to the village of Apsley, not exceeding 30 miles.

534. For a line of railway from a point on the Dominion Atlantic Railway at or near Wolfville, Nova Scotia, to the Government pier on the Basin of Minas, not exceeding one mile.

535. To the Algoma Central and Hudson Bay Railway Company, for a line of railway from Sault Ste. Marie to a point on the Canadian Pacific Railway at or near White River, in the district of Algoma, in extension of the subsidy granted to the Algoma Central Railway by 1899, cap. 8, sec. 2, paragraph 23, and by 1900, cap. 8, sec. 2, paragraph 4, a further and additional mileage not exceeding 135 miles.

536. For a line of railway from Bridgetown, Nova Scotia, to Middleton, in extension of the line subsidized by 1900, cap. 8, sec. 2, paragraph 28, not exceeding 11 miles.

537. For a line of railway from a point on the Grand Trunk Railway at or near Burk's Falls, Ontario, to the Maganetawan River, not exceeding two miles.

538. For a line of railway between Halifax and the Central Railway, Nova Scotia, from the end of the 40th mile from Halifax, subsidized by 1900, cap. 8, sec. 2, paragraph 40, to a junction with the Central Railway, Nova Scotia, not exceeding 30 miles.

539. For a line of railway from a point on the Algoma branch of the Canadian Pacific Railway at or near Bruce Lake Station, northerly to a point at or near Rock Lake, in the district of Algoma, not exceeding 9 miles.

540. For a line of railway from Roberval, Quebec, westward towards James Bay, not exceeding 60 miles.

541. For a line of railway from a point upon the Stonewall branch or the Selkirk branch of the Canadian Pacific Railway to Icelandic River by way of Gimli, not exceeding 35 miles.

542. To the Restigouche and Western Railway Company, for an extension of its line of railway from the 50th mile from Campbellton already subsidized, westward, to effect a junction with its line of railway subsidized 27 miles east from the St. John River, not exceeding 33 miles.

543. For a line of railway from Duncan Lake towards Lardo or Arrow Lake, British Columbia, or from Lardo to Arrow Lake, in lieu of the subsidy granted by 1900, cap. 8, sec. 2, paragraph 21, not exceeding 30 miles.

3. The Governor in Council may grant to the Ottawa and Gatineau Railway, for its unearned balance of subsidy upon the 62 miles of its line of railway from Hull towards Désert, granted by 1897, chap. 4, sec. 3, paragraph 3, a sum not exceeding $35,872.

4. The subsidies hereby authorized, and any subsidies heretofore authorized under any Act of Parliament of Canada still in force but not fully paid, towards the construction of any railway or bridge, shall be payable out of the Consolidated Revenue Fund of Canada, and may, unless otherwise expressly provided in this Act, at the option of the

Governor in Council, on the report of the Minister of Railways and Canals, be paid as follows:—

(*a.*) upon the completion of the work subsidized; or

(*b.*) by instalments, on the completion of each ten-mile section of the railway, in the proportion which the cost of such completed section bears to that of the whole work undertaken; or

(*c.*) upon progress estimates on the certificate of the Chief Engineer of Government Railways, that, in his opinion, having regard to the whole work undertaken and the aid granted, the progress made justifies the payment of a sum not less than sixty thousand dollars; or

(*d.*) with respect to (*b.*) and (*c.*), part one way, part the other.

5. The subsidy of 66 miles granted to the Manitoulin and North Shore Railway Company for a line of railway between Little Current, on Manitoulin Island, and Sudbury, Ontario, by paragraph 6 of section 2 of chapter 8 of the statutes of 1900, may be contracted for with the company and paid, and the work may be begun and prosecuted in two sections, the first beginning at or near Victoria Mines, in the township of Denison, and extending to Sudbury, and thence north-easterly towards Lake Wahnapitae, not exceeding 33 miles; the second section beginning at Little Current and extending to and connecting with the Canadian Pacific Railway at or near Stanley, in the township of Baldwin, on the Canadian Pacific Railway, not exceeding 31 miles; subject, however, to the company carrying out the undertakings contained in paragraph 6 of section 2 of chapter 8 of the statutes of 1900.

6. The subsidies hereinbefore authorized to be granted to companies named, shall, if granted by the Governor in Council, be granted to such companies respectively; the other subsidies may be granted to such companies as establish to the satisfaction of the Governor in Council their ability to construct and complete the said railways respectively; all the lines for the construction of which subsidies are granted, unless they are already commenced, shall be commenced within two years from the first day of August, 1901, and completed within a reasonable time, not to exceed four years from the said first day of August, to be fixed by the Governor in Council, and shall also be constructed upon a location, and according to descriptions, conditions, and specifications approved by the Governor in Council on the report of the Minister of Railways and Canals, and specified in each case in a contract between the company and the said Minister, which contract the Minister, with the approval of the Governor in Council, is hereby empowered to make.

7. The granting of such subsidies, and the receipt thereof by the respective companies, shall be subject to the condition that the Governor in Council may at all times provide and secure to other companies such running powers, traffic arrangements, and other rights, as will afford to all railways connecting with those so subsidized, reasonable and proper facilities in exercising such running powers, fair and reasonable traffic arrangements with connecting companies, and equal mileage rates between all such connecting railways; and the Governor in Council shall have absolute control, at all times, over the rates and tolls to be levied and taken by any of the companies, or upon any of the railways hereby subsidized.

8. Every company receiving a subsidy under this Act, its successors and assigns, and any person or company controlling or operating the railway or portion of railway subsidized under this Act, shall each year furnish to the Government of Canada transportation for men, supplies, materials and mails over the portion of the line in respect of which it has received such subsidy, and, whenever required, shall furnish mail cars properly equipped for such mail service; and such transportation and service shall be performed at such rates as are agreed upon between the Minister of the Department of the Government for which such service is being performed and the company performing it, and, in case of disagreement, then at such rates as are approved by the Governor in Council; and in or towards payment for such charges the Government of Canada shall

be credited by the company with a sum equal to three per cent per annum on the amount of the subsidy received by the company under this Act.

9. As respects all railways for which subsidies are granted by this Act, the company at any time owning or operating any of the railways shall, when required, produce and exhibit to the Minister of Railways and Canals, or any person appointed by him, all books, accounts and vouchers, showing the cost of constructing the railway, the cost of operating it, and the earnings thereof.

10. The Governor in Council may make it a condition of the grant of the subsidies herein provided, or any heretofore authorized by any Act of Parliament as to which a contract has not yet been entered into with the company for the construction of the railway, that the company shall lay its road with new steel rails, made in Canada, if they are procurable in Canada of suitable quality, upon terms as favourable as other rails can be obtained, of which the Minister of Railways and Canals shall be the judge.

By the Act 3rd Edward VII., chap. 57 (assented to 24th October, 1903.)

1. In this Act, unless the context otherwise requires, the expression 'cost' means the actual, necessary and reasonable cost and shall include the amount expended upon any bridge, up to and not exceeding $25,000, forming part of the line of railway subsidized not otherwise receiving any bonus, but shall not include the cost of terminals and right of way of the railway in any city or incorporated town; and such actual, necessary and reasonable cost shall be determined by the Governor in Council, upon the recommendation of the Minister of Railways and Canals, and upon the report of the Chief Engineer of Government Railways, certifying that he has made or caused to be made an inspection of the line of railway for which payment of subsidy is asked, and careful inquiry into the cost thereof, and that in his opinion the amount upon which the subsidy is claimed is reasonable, and does not exceed the true, actual and proper cost of the construction of such railway.

2. The Governor in Council may grant a subsidy of $3,200 per mile towards the construction of each of the undermentioned lines of railway (not exceeding in any case the number of miles hereinafter respectively stated) which shall not cost more on the average than $15,000 per mile for the mileage subsidized, and towards the construction of each of the said lines of railway not exceeding the mileage hereinafter stated, which shall cost more on the average than $15,000 per mile for the mileage subsidized, a further subsidy beyond the sum of $3,200 per mile of fifty per cent on so much of the average cost of the mileage subsidized as is in excess of $15,000 per mile, such subsidy not exceeding in the whole the sum of $6,400 per mile:—

544. To the Tilsonburg, Lake Erie and Pacific Railway Company, for a line of railway from the present terminus at Ingersoll to Woodstock, not exceeding 9 miles, in lieu of the subsidy granted by item 26 of section 2 of chapter 7 of 1899.

545. To the Lindsay, Bobcaygeon and Pontypool Railway Company, for a line of railway from Burketon to Bobcaygeon, not exceeding 40 miles, in lieu of the subsidy granted by item 11 of section 2 of chapter 7 of 1899.

546. To the Toronto, Lindsay and Pembroke Railway Company, for a line of railway from Golden Lake to Bancroft, not exceeding 51 miles, in lieu of the subsidy granted by item 6 of section 2 of chapter 7, 1901.

547. To the Central Ontario Railway, for a further extension of its railway from a point at or near Bancroft to a point on the Canada Atlantic Railway at or near Whitney, not exceeding 40 miles, in lieu of the subsidies granted by item 5 of section 2 of chapter 8 of 1900, and item 16 of section 2 of chapter 7 of 1901, respectively.

548. To the Strathroy and Western Counties Railway Company, for a line of railway from a point at Lambeth to Strathroy, via the villages of Delaware, Mount Brydges and Caradoc Station on the Canadian Pacific Railway, and from Strathroy northerly to Forest, Thedford or Parkhill, not exceeding in all 31 miles, in lieu of subsidies granted by item 4 of section 2 of chapter 7, 1899, and item 2 of section 2 of chapter 8 of 1900, respectively.

549. To the Montfort and Gatineau Colonization Railway Company, to extend its railway from Arundel to a point in the municipality of the united townships of Preston and Hartwell, not exceeding 30 miles, in lieu of the subsidy granted by item 31 of section 2 of chapter 8 of 1900.

550. For a line of railway from Jonquières to La Baie des Ha Ha, not exceeding 20 miles, in lieu of the subsidy of 12 miles granted by item 21 of section 2 of chapter 7 of 1899.

551. For a line of railway from Lime Ridge northerly through the county of Wolfe in the county of Megantic, not exceeding 50 miles, being a revote of the subsidy granted by chapter 4 of 1894.

552. For a line of railway from Joliette to or near Lake Manuan, a distance not exceeding 60 miles, being a revote and in lieu of subsidies granted by chapter 4 of 1897 and chapter 8 of 1900.

553. For a line of railway from St. Eustache to St. Placide in the county of Two Mountains, not to exceed 18 miles; from St. Eustache to Sault au Recollet, 12 miles; and from St. Placide to St. Andrews, 8 miles—not exceeding in all 38 miles; being a revote of subsidies granted by chapter 24 of 1887 and chapter 5 of 1892, respectively.

554. For a line of railway from Roberval westward towards James Bay, not exceeding 60 miles, in lieu of the subsidy granted by item 25 of section 2 of chapter 7 of 1901.

556. For a line of railway from Yamaska to Lotbinière, a distance not exceeding 70 miles, in lieu of the subsidy granted by item 27 of section 2 of chapter 7 of 1899.

557. To the Ottawa, Northern and Western Railway Company, for that portion of its line from a point at the east end of the Hull station yard of the Canadian Pacific Railway to a point of junction with the Interprovincial Bridge approach in the city of Hull, not exceeding one mile; and for a line of railway to the boundary line of the city of Hull from a point on the Ottawa and Gatineau Railway, now the Ottawa, Northern and Western Railway, not exceeding one-quarter of a mile; in lieu of any balance of mileage subsidized by items 12 and 39 respectively of section 2 of chapter 7 of 1899.

558. To the International Railway Company of New Brunswick (formerly the Restigouche and Western Railway Company), for a line of railway from the western end of the ten miles of its railway, as already constructed from Campbellton towards a point on the St. John River between Grand Falls and Edmundston, not exceeding 67 miles, being a revote, and in lieu of subsidies granted by chapter 4 of 1897, item 42 of section 2 of chapter 7 of 1899, and item 22 of section 2 of chapter 8 of 1900.

559. For a line of railway from Woodstock to the International Boundary, not exceeding 26 miles, being a revote of the subsidy granted by chapter 4 of 1894.

560. To the St. John Valley Railway Company, for a line of railway from a point on the Canadian Pacific Railway at or near Welsford or Westfield, or between the said two points, to Gagetown, not exceeding 30 miles, being a revote of the subsidy granted by chapter 4 of 1897.

561. To the Shediac and Coast Railway Company, for a line of railway from Shediac to Shemogue and towards Cape Tormentine, in Westmoreland County, not exceeding 38 miles, in lieu of the subsidy granted by item 25 of section 2 of chapter 8 of 1900.

562. To the Mabou and Gulf Railway Company, Limited, for a line of railway from Mabou Coal Mines to a point at or near Glendyer, thence to Orangedale on the Intercolonial Railway, not exceeding 34 miles, a revote of the subsidy granted by chapter 4 of 1894, and in substitution of the 25 miles subsidized thereby from Orangedale to Broad Cove.

563. To the Nova Scotia Eastern Railway Company, Limited, for a line of railway from New Glasgow to Cross Roads, Country Harbour, thence to the town of Guysborough, and thence to the Strait of Canso; with a branch from Cross Roads, Country Harbour, aforesaid, down the Country Harbour River to the Deep Waters thereof, not exceeding 116 miles; in lieu of subsidies for 40 and 80 miles granted by items 4 and 1, respectively, of section 2 of chapter 7 of 1901.

564. For a line of railway from Debert Station on the Intercolonial Railway to Debert Coal Mine, not exceeding 4½ miles, in lieu of the subsidy granted by item 29 of section 2 of chapter 8 of 1900.

565. For a line of railway from a point on the Joggins Railway near River Hebert Railway Bridge to the village of Minudie, not exceeding 6 miles, being a revote and in substitution of subsidy granted by chapter 4 of 1894.

566. To the Middleton and Victoria Beach Railway Company, Limited, for a line of railway from Victoria Beach to Middleton, not exceeding 41 miles, in lieu of subsidies granted by item 28 of section 2 of chapter 8 of 1900, and by item 21 of section 2 of chapter 7 of 1901.

567. To the Halifax and South-western Railway Company, for the following lines of railway:—

(*a.*) A line of railway from a point at or near Halifax to a point on the Central Railway at or near Mahone Bay, not exceeding 68 miles.

(*b.*) A line of railway from a point on the Central Railway at or near Bridgewater towards Barrington Passage, not exceeding 77 miles.

(*c.*) A line of railway from a point at or near New Germany on the Central Railway to a point at or near Caledonia, not exceeding 22 miles.

(*d.*) A line of railway from a point at or near Caledonia to Liverpool, not exceeding 29 miles.

The subsidies to the said lines of railway being granted in lieu of subsidies granted by items 17, 18, 35 and 36 of section 2 of chapter 7, 1899 by items 26 and 40 of section 2 of chapter 8 of 1900, and items 5 and 23 of section 2 of chapter 7 of 1901, respectivley.

568. To the Inverness Railway and Coal Company, formerly the Inverness and Richmond Railway Company, Limited, for 8 miles of railway between Point Tupper and Broad Cove; and for a line of railway not exceeding 37 miles, from Cheticamp to a point on the line already built between Broad Cove and Point Tupper, being a revote and in substitution of the subsidy granted by chapter 4 of 1897.

569. For a line of railway from a point at or near Wolfville on the Dominion Atlantic Railway to the Government pier on the Basin of Minas, not exceeding one mile, in lieu of the subsidy granted by item 19 of section 2 of chapter 7 of 1901.

570. To the Nicola, Kamloops and Similkameen Coal and Railway Company, for a line of railway from a point at or near Spence's Bridge on the Canadian Pacific Railway to Nicola Lake, not exceeding 45 miles, being a revote of subsidies granted by chapter 5 of 1892 and chapter 4 of 1894.

571. For a line of railway from Winnipeg Beach or Teulon to a point on Icelandic River, by way of Gimli, not exceeding 35 miles, in lieu of the subsidy granted by item 26 of section 2 of chapter 7 of 1901.

572. To the Edmonton, Yukon and Pacific Railway Company, for a line of railway from the town of Strathcona to Edmonton, and thence westerly towards the Yellow Head Pass, a distance not exceeding 50 miles, in lieu of the subsidy granted by item 41 of section 2 of chapter 7 of 1899.

573. To the St. John Valley and Rivière du Loup Railway Company, for a line of railway from Fredericton to Woodstock, not exceeding 59 miles, in lieu of the subsidy granted by item 5 of section 2 of chapter 7 of 1899.

574. For a line of railway from Hawkesbury, Ontario, to South Indian, not exceeding 35 miles, in lieu of the subsidy granted by item 22 of section 2 of chapter 7 of 1899.

575. To the Tilsonburg, Lake Erie and Pacific Railway Company, for a line of railway from Woodstock northerly to a point on the Grand Trunk Railway at Berlin, or from Ingersoll to Stratford, or to any point on the Grand Trunk Railway between these places, not exceeding 35 miles, being in addition to and continuation of the 9 miles mentioned in item 1 of this section (544).

576. To the Irondale, Bancroft and Ottawa Railway Company, for a line of railway from the present terminus of its railway, near Baptiste, easterly to a point at or near Renfrew, not exceeding 75 miles.

577. To the Nepigon Railway Company, for a line of railway from Lake Superior to Lake Nepigon, and from a point on the north shore of Lake Nepigon northerly, not exceeding 80 miles.

578. To the Manitoulin and North Shore Railway Company, for a line of railway from Little Current on its present line, to Sudbury, and thence towards the main line of the Canadian Pacific Railway Company, not exceeding 30 miles, in lieu of the subsidy for 21 miles granted by item 38 of section 2 of chapter 7 of 1899.

579. To the Thunder Bay, Nepigon and St. Joe Railway Company, for a line of railway from Port Arthur north-easterly, not exceeding 50 miles.

580. To the Timagami Railway Company, for a line of railway from a point at or near Sturgeon Falls in a north-westerly direction to a point on the westerly shore of Lake Timagami in the district of Nipissing, not exceeding 50 miles.

581. To the Bay of Quinté Railway Company, for further extension of its line of railway, from the northern terminus thereof, commencing from a point at or near Actinolite, thence in a north-westerly direction, via the villages of Queensboro' and Bannockburn, to a point in the township of Marmora or Lake in Hastings County, not exceeding 20 miles in all.

582. To the Bruce Mines and Algoma Railway Company, for 21 miles from the end of its line, as subsidized by chapter 7 of 1901, northward, not exceeding 21 miles.

583. To the James Bay Railway Company, for a line of railway from Toronto, via the east side of Lake Simcoe, to a point at, near, or beyond Sudbury, through Parry Sound, not exceeding 265 miles, in lieu of two subsidies granted by chapter 8 of 1900, for 35 and 20 miles, respectively, from Parry Sound towards James Bay.

584. To the Quebec and Lake St. John Railway Company, for one mile of railway from Roberval to the Government wharf at Lake St. John.

585. To the Montfort and Gatineau Colonization Railway Company, for the extension of its line of railway from Morin Flats to St, Jerome. to connect with the Great Northern Railway, not exceeding 22 miles.

586. To the Interprovincial and James Bay Railway Company, for a line of railway from Lake Timiskaming at the present terminus of the Canadian Pacific Railway line, in a northerly direction, not to exceed 50 miles.

587. For a line of railway from Waltham Station to Ferguson Point, in the county of Pontiac, not exceeding 20 miles.

588. For a line of railway from Lake Nominingue to Le Lièvre, not exceeding 35 miles.

589. For a line of railway in extension of the line from Lime Ridge into the county of Megantic to the bridge over the St. Lawrence at or near Quebec, not exceeding 30 miles.

590. To the Quebec Central Railway Company, for an extension of its line of railway from St. François to St. George, not exceeding 9 miles; also for a railway from Scott Junction to the Quebec bridge, not exceeding 22 miles.

591. For a line of railway from the station of Lac Bouchette on the Quebec and Lake St. John Railway to St. André, not exceeding 13 miles.

592. For a line of railway from Quebec towards Seven Islands, including branches to Murray Bay and Baie St. Paul, not exceeding 200 miles.

593. For a branch line from a point at or near the intersection of the Canadian Pacific Railway and the Great Northern Railway between St. Philippe d'Argenteuil and Lachute, thence in a northerly direction, passing through the village of Brownsburg, not exceeding 3 miles.

594. To the Orford Mountain Railway Company, for a line of railway from a point on its main line between Lawrenceville and Eastman to Lake Bonella, 5 miles; from Kingsbury to Windsor Mills, 10 miles; and from Eastman to the town line between the township of Bolton, east part, and the township of Potton, 12 miles—not exceeding in the whole 27 miles.

595. To the Atlantic, Quebec and Western Railway Company, for a line of railway from Gaspé to a point at or near Causapscal on the Intercolonial Railway, and from that point to Edmundston, not exceeding 260 miles; and for a line of railway from Paspebiac to Gaspé as near the shore as practicable, not exceeding 102 miles.

596. For a line of railway, in addition to and in extension of the line mentioned in item 11 (554) of this section, from Roberval towards James Bay, not exceeding 40 miles.

597. For a branch line from a point near the bridge at Trois Pistoles River on the Intercolonial Railway in a south-easterly direction to Mackenzie and Renouf Falls, on the Trois Pistoles River, not exceeding 2½ miles.

598. To the Matane and Gaspé Railway Company, for a line of railway from a point at or near St. Octave on the Intercolonial Railway to Matane, not exceeding 30 miles.

599. To the Chateauguay and Northern Railway Company, for a line of railway from a point on its main line at or near L'Epiphanie, passing by way of the parish of St. Jacques de l'Achigan to the village of Rawdon, not exceeding 16 miles.

600. For a line of railway from the line of the Montreal and Atlantic Railway Company at St. Guillaume to the River Yamaska to join with the South Shore Railway, a distance not exceeding 12 miles.

601. For aline of railway from La Tuque on the St. Maurice River to a point on the Lake St. John Railway near the River Jeannotte, not exceeding 35 miles.

602. To the Montreal Northern Railway Company, for a line of railway from a point at or near Ste. Agathe des Monts station towards the township of Howard, in the county of Argenteuil, passing near Lakes St. Joseph and Ste. Marie, in a southerly direction, a distance not exceeding 15 miles.

603. To the International Railway Company of New Brunswick, for a line of railway, in addition to and in extension of the line of 67 miles mentioned in item 14 of this section, to a point on the St. John River between Grand Falls and Edmundston, not exceeding 33 miles.

604. To the Beersville Coal and Railway Company, for a line of railway from Adamsville on the Intercolonial Railway to a point at or near Brown's Landing or Beersville, not exceeding 7 miles.

605. To the York and Carleton Railway Company, for a line of railway from its present terminus westerly, not exceeding 5 miles.

606. To the Mabou and Gulf Railway Company, Limited, for a line of railway from a point on the Intercolonial Railway at or near Mines Road Station to the wharf at Caribou Cove, not exceeding 4 miles, being in addition to subsidy mentioned in item 18 (562) of this section.

607. To the Nova Scotia Eastern Railway Company, Limited, for a line of railway from Dartmouth through the Musquodoboit Valley to a point at or near Melrose to connect there with the railway mentioned in item 19 (563) of this section, not exceeding 120 miles.

608. To the Midland Railway Company, Limited, for a line of railway from Truro northerly towards Brule, not exceeding 34 miles.

609. For a line of railway from St. Peters to Louisburg, not exceeding 50 miles.

610. To the Kootenay Central Railway Company, for a line of railway from Golden to the International Boundary Line, via Windermere and Fort Steele, and crossing the Crow's Nest Railway at or near Elko, not exceeding 186 miles.

611. To the Kettle River Valley Railway Company, for a line of railway from Grand Forks to a point 50 miles up the North Fork and West Fork of the North Fork of Kettle River, not exceeding 50 miles.

612. For a line of railway from Wellington to Union Bay, not exceeding 55 miles.

613. For a line of railway from Midway to Vernon, not exceeding 150 miles.

614. To the St. Mary's River Railway Company, for a line of railway from Spring Coulee, crossing St. Mary's River to Cardston, 16 miles, and from a point on this line to or near the intake of the irrigation canal, about 16 miles, in all not exceeding 32 miles.

615. For a line of railway from Dawson to Stewart River, passing at or near Grand Forks, not exceeding 84 miles.

616. To the Canadian Pacific Railway Company, for a branch line from a point on the main line between Moosomin and Elkhorn, north-westerly to a point in the neighbourhood of the Pheasant Hills, not exceeding 136 miles.

617. For a line of railway from a point at or near Medicine Hat on the Canadian Pacific Railway to the coal fields in or near townships 12 and 13, range 6, west of the fourth principal meridian, not exceeding 8 miles.

618. To the Great Northern Railway of Canada, for a line of railway from Garneau Junction to the Quebec bridge, not exceeding 70 miles.

619. To the Halifax and South-western Railway Company, for a line of railway to Barrington Passage, in addition to and in continuation of the 77 miles mentioned in paragraph *(b)* of item 23 (567) of this section, not exceeding 35 miles.

620. To the Lake Superior, Long Lake and Albany Railway Company, for a line of railway from Peninsula Harbour in a northerly direction, not exceeding 10 miles.

621. To the Cumberland Railway and Coal Company, for a line of railway from Parrsboro' Station to Riverside Wharf, not exceeding 1 mile.

622. To the Indian River Railway Company, for a line of railway from a point at or near the north end of Lake Megantic, thence southerly along the said lake to a point on the International Boundary, not exceeding 19 miles.

3. The Governor in Council may grant the subsidies hereinafter mentioned towards the construction of the bridges also hereinafter mentioned, that is to say :—

623. Towards the construction and completion of a railway bridge and approaches over the Nicolet River at Nicolet, in lieu of the grant under item 39 of section 2 of chapter 8 of 1900, $15,000.

624. Towards the construction of the steel superstructure of a railway bridge on the St. Francis River, in the county of Yamaska, in lieu of the grant under item 38 of section 2 of chapter 8 of 1900, but subject to the same conditions as expressed therein, payable to the Canadian Bridge Company of Walkerville, as their claim may appear for work already done on the said bridge, $50,000.

625. To the Canadian Bridge Company of Walkerville, to strengthen and complete the foundation and approaches to the bridge over the St. Francis River subsidized in favour of the South Shore Railway Company by section 3 of chapter 7 of 1899, $35,000, which amount shall remain the first charge on the road, and shall be recouped to the Treasury out of subsidies earned or to be earned, $35,000.

626. To the Chateauguay and Northern Railway Company, in addition to the subsidy for the Bout de l'Ile bridge granted by item 33 of section 2 of chapter 8 of 1900, $80,000.

4. The subsidies hereby authorized towards the construction of any railway or bridge shall be payable out of the Consolidated Revenue Fund of Canada, and may, unless otherwise expressly provided in this Act, at the option of the Governor in Council, on the report of the Minister of Railways and Canals, be paid as follows :—

(*a.*) upon the completon of the work subsidized ; or

(*b.*) by instalments, on the completion of each ten-mile section of the railway, in the proportion which the cost of such completed section bears to that of the whole work undertaken ; or

(*c.*) upon the progress estimates on the certificate of the Chief Engineer of the Department of Railways and Canals, that, in his opinion, having regard to the whole work undertaken and the aid granted, the progress made justifies the payment of a sum not less than thirty thousand dollars ; or

(*d.*) with respect to (*b*) and (*c*), part one way, part the other.

5. The subsidies hereinbefore authorized to be granted to companies named shall, if granted by the Governor in Council, be granted to such companies respectively ; the other subsidies may be granted to such companies as establish to the satisfaction of the Governor in Council their ability to construct and complete the said railways and bridges respectively ; all the lines and bridges for the construction of which subsidies are granted, unless they are already commenced, shall be commenced within two years from the first day of August, 1903, and completed within a reasonable time, not to exceed four years from the said first day of August, to be fixed by the Governor in Council, and shall also be constructed according to descriptions, conditions and specifications approved by the Governor in Council on the report of the Minister of Railways and Canals, and specified in each case in a contract between the Company and the said Minister, which contract the Minister, with the approval of the Governor in Council, is hereby empowered to make. The location also of such subsidized lines and bridges shall be subject to the approval of the Governor in Council.

6. The granting of such subsidies, and the receipt thereof by the respective companies, shall be subject to the condition that the Governor in Council may at all times provide and secure to other companies such running powers, traffic arrangements and other rights, as will afford to all railways connecting with the railways and bridges so subsidized, reasonable and proper facilities in exercising such running powers, fair and reasonable traffic arrangements with connecting companies, and equal mileage rates between all such connecting railways ; and the Governor in Council shall have absolute control, at all times, over the rates and tolls to be levied and taken by any of the companies, or upon any of the railways and bridges hereby subsidized.

7. Every company receiving a subsidy under this Act, its successors and assigns, and any person or company controlling or operating the railway or portion of railway subsidized under this Act, shall each year furnish to the Government of Canada transportation for men, supplies, materials and mails over the portion of the line in respect of which it has received such subsidy, and whenever required, shall furnish mail cars properly equipped for such mail service ; and such transportation and service shall be performed at such rates as are agreed upon between the Minister of the department of the Government for which such service is being performed and the company performing it, and, in case of disagreement, then at such rates as are approved by the Governor in

Council: and in or towards payment for such charges the Government of Canada shall be credited by the company with a sum equal to three per cent per annum on the amount of the subsidy received by the company under this Act.

8. As respects all railways and bridges for which subsidies are granted by this Act, the company at any time owning or operating any of the railways shall, when required, produce and exhibit to the Minister of Railways and Canals, or any person appointed by him, all books, accounts and vouchers, showing the cost of constructing the railway or bridge, the cost of operating it, and the earnings thereof.

9 The Governor in Council may make it a condition of the grant of the subsidies herein provided, or any heretofore authorized by any Act of Parliament as to which a contract has not yet been entered into with the company for the construction of the railway, that the company shall lay its road with new steel rails, made in Canada, if they are procurable in Canada of suitable quality, upon terms as favourable as other rails can be obtained, of which the Minister of Railways and Canals shall be judge.

By Special Act 4 Edward VII., Chap. 34, 1904.

1. In this Act, unless the context otherwise requires, the expression "cost" means the actual, necessary and reasonable cost, and shall include the amount expended upon any bridge, up to and not exceeding $25,000, forming part of the line of railway subsidized not otherwise receiving any bonus, but shall not include the cost of terminals and right of way of the railway in any city or incorporated town; and such actual, necessary and reasonable cost shall be determined by the Governor in Council, upon the recommendation of the Minister of Railways and Canals, and upon the report of the Chief Engineer of Government Railways, certifying that he has made or caused to be made an inspection of the line of railway for which payment of subsidy is asked, add careful inquiry into the cost thereof, and that in his opinion the amount upon which the subsidy is claimed is reasonable, and does not exceed the true, actual and proper cost of the construction of such railway.

2. The Governor in Council may grant a subsidy of $3,200 per mile towards the construction of each of the undermentioned lines of railway (not exceeding in any case the number of miles hereinfter respectively stated) which shall not cost more on the average than $15,000 per mile for the mileage subsidized, and towards the construction of each of the said lines of railway not exceeding the mileage hereinafter stated, which shall cost more on the average than $15,000 per mile for the mileage subsidized, a further subsidy beyond the sum of $3,200 per mile of 50 per cent on so much of the average cost of the mileage subsidized as in excess of $15,000 per mile, such subsidy not exceeding in the whole the sum of $6,400 per mile:—

627. To the Bracebridge and Trading Lake Railway Company, for a railway from Bracebridge in Muskoka, to a point at or near Baysville, Ontario, in lieu of the subsidy granted by item 7 of section 2 of chapter 8 of 1900, not exceeding 14 miles.

628. To the Bruce Mines and Algoma Railway Company, for the following lines of railway:—

(a.) For that portion of its line of railway from Bruce Mines Junction southerly to the town of Bruce Mines, on Lake Huron, a distance not exceeding 3 miles;

(b) For the 6 miles of railway constructed from Gordon Lake Station, being the end of its line as subsidized by chapter 7 of 1901, northward to Rock Lake, a distance of 6 miles:

(c) For 12 miles from Rock Lake northward, a distance not exceeding 12 miles;

The subsidies to the said lines being granted in lieu of the subsidy granted by item 38 of section 2 of chapter 67 of 1903, not exceeding 21 miles.

629. To the Nepigon Railway Company, for the following lines of railway :—

(*a*.) From a point at or near Nepigon Station on the line of the Canadian Pacific Railway to Nepigon Lake, not exceeding 30 miles ;

(*b*.) From a point on Nepigon Bay of Lake Superior to a point on the west of Lake Helen on the line of the Nepigon Railway, not exceeding 3½ miles ;

(*c*.) From a point on the line of the Nepigon Railway at or near the crossing of the Fraser River, to a point on Lake Jesse, by way of Cameron's Falls, not exceeding 1½ mile :

(*d*.) From a point on the north shore of Lake Nepigon northerly, not exceeding 45 miles ;

The subsidies to the said lines being granted in lieu of the subsidy granted by item 33 of section 2 of chapter 57 of 1903, not exceeding 80 miles.

630. For the construction of a branch line of railway beginning at the Canadian Pacific Railway Company's main line at St. Philippe d'Argenteuil Station, or at a point between there and Grenville, thence in a northerly direction, in lieu of the subsidy granted by item 49 section 2 of chapter 57 of 1903, not exceeding 3 miles.

631. To the Chateauguay and Northern Railway, for a railway from a point in Hochelaga ward, Montreal, to a point on the Great Northern Railway in or near the Town of Joliette, passing at or near the Town of L'Assomption, Quebec, together with a spur line into the said town, in lieu of the subsidy granted by item 32 of section 2 of chapter 8 of 1900, not exceeding 42 miles.

632. To the Great Northern Railway Company of Canada, to enable it to extend its railway from Arundel to a point in the municipality of the united Townships of Preston and Hartwell, Province of Quebec, in lieu of the subsidy granted to the Montford and Gatineau Colonization Railway by item 6 of section 2 of chapter 57 of 1903, not exceeding 30 miles.

633. To the Chateauguay and Northern Railway Company, for a branch line from a point on its main line at or near Charlemagne, thence northerly and westerly to a point on the Montford and Gatineau Railway at or near Morin Flats, in lieu of the subsidy granted to the Montford and Gatineau Colonization Railway by item 41 of section 2 of chapter 57 of 1903, not exceeding 22 miles.

634. To the Ottawa River Railway Company, for a line of Railway from a point at or near St. Agathe des Monts Station towards the township of Howard in the County of Argenteuil, passing near Lakes St. Joseph and St. Marie, in a southerly direction, in lieu of the subsidy granted to the Montreal Northern Railway Company by item 58 of section 2 of chapter 57 of 1903, not exceeding 15 miles.

635. To the Ottawa River Railway Company, for a line of railway between a point in the Parish of St. Andrews, in the County of Argenteuil, and a point in the Parish of St. Lawrence, in the County of Jacques Cartier, passing through the Parishes of St. Placide, St. Eustache and St. Martin, in lieu of the subsidy granted by item 10 of section 2 of chapter 57 of 1903, not exceeding 38 miles.

636. For a line of railway from Lardo towards Upper Arrow Lake, British Columbia, in lieu of the subsidy granted by item 29 of section 2 of chapter 7 of 1903, not exceeding 30 miles

637. To the Western Alberta Railway Company, from a point on the United States boundary, west of range 27, northwesterly towards Anthracite, in the district of Alberta, in lieu of the subsidy granted by item 40 of section 2 of chapter 7 of 1899, not exceeding 50 miles.

3. The Governor in Council may grant the subsidy hereinafter mentionned towards the construction of the bridge also hereinafter mentioned, that is to say :—

638. To the Chateauguay and Northern Railway Company, the balance remaining unpaid of the subsidy granted by item 33 of section 2 of chapter 8 of 1900, for a single-track standard railway bridge, with two roadways 10 feet wide for free vehicular traffic, the same as upon a public highway, from Bout de L'Ile to Charlemagne at the Junction of the Ottawa and St. Lawrence Rivers, a sum not exceeding $51,000.

4. The subsidies hereby authorized towards the construction of any railway or bridge shall be payable out of the Consolidated Revenue Fund of Canada, and may, unless otherwise expressly provided in this Act, at the option of the Governor in Council, on the report of the Minister of Railways and Canals, be paid as follows :—

(*a*.) Upon the completion of the work subsidized ; or

(*b*.) By instalments, on the completion of each ten-mile section of the railway, in the proportion which the cost of such completed section bears to that of the whole work undertaken ; or

(*c*.) Upon the progress estimates on the certificate of the Chief Engineer of the Department of Railways and Canals, that, in his opinion, having regard to the whole work undertaken and the aid granted, the progress made justifies the payment of a sum not less than thirty thousand dollars ; or

(*d*.) With respect to (*b*) and (*c*), part one way, part the other.

5. The subsidies hereinbefore authorized to be granted to companies named shall, if granted by the Governor in Council, be granted to such companies respectively ; the other subsidies may be granted to such companies as establish to the satisfaction of the Governor in Council their ability to construct and complete the said railways and bridges for the construction of which subsidies are granted, unless they are already commenced, shall be commenced within two years from the first day of August, 1904, and completed within a reasonable time, not to exceed four years from the said first day of August, to be fixed by the Governor in Council, and shall also be constructed according to descriptions, conditions and specifications approved by the Governor in Council on the report of the Minister of Railways and Canals, and specified in each case in a contract between the Company and the said Minister, which contract the Minister, with the approval of the Governor in Council, is hereby empowered to make. The location also of such subsidized lines and bridges shall be subject to the approval of the Governor in Council.

6. The granting of such subsidies, and the receipt thereof by the respective companies, shall be subject to the condition that the Board of Railway Commissioners for Canada may at all times provide and secure to other companies such running powers, traffic arrangements and other rights, as will afford to all railways connecting with the railways and bridge so subsidized, reasonable and proper facilities in exercising such running powers, fair and reasonable traffic arrangements with connecting companies, and equal mileage rates between all such connecting railways ; and the said Board shall have absolute control, at all times, over the rates and tolls to be levied and taken by any of the companies, or upon any of the railways and the bridge hereby subsidized. Provided always that any decision of the said Board made under this section may be at any time varied, changed, or rescinded by the Governor in Council as he deems just and proper.

7. Every company receiving a subsidy under this Act, its successors and assigns, and any person or company controlling or operating the railway or portion of railway subsidized under this Act, shall each year furnish to the Government of Canada transpor-

tation for men, supplies, materials and mails over the portion of the lines in respect of which it has received such subsidy, and, whenever required, shall furnish mail cars properly equipped for such mail service; and such transportation and service shall be performed at such rates as are agreed upon between the Minister of the Department of the Government for which such service is being performed, and the company performing it, and, in case of disagreement, then at such rates as are approved by the Board of Railway Commissioners for Canada; and in or towards payment for such charges the Government of Canada shall be credited by the company with a sum equal to three per cent per annum on the amount of subsidy received by the company under the Act.

8. As respects all railways and the bridge for which subsidies are granted by this Act, the company at any time owning or operating any of the railways shall, when required, produce and exhibit to the Minister of Railways and Canals, or any person appointed by him, all books, accounts and vouchers, showing the cost of constructing the railway or bridge, the cost of operating it, and the earnings thereof.

9. The Governor in Council may make it a condition of the grant of the subsidies herein provided, or any heretofore authorized by any Act of Parliament as to which a contract has not yet been entered into with the company for the construction of the railway, that the company shall lay its road with new steel rails, made in Canada, if they are procurable in Canada of suitable quality, upon terms as favourable as other rails can be obtained, of which the Minister of Railways and Canals shall be the judge.

10. Whenever a contract has been duly entered into with a company for the construction of any line of railway hereby subsidized, the Minister of Railways and Canals, at the request of the company, and upon the report of the Chief Engineer of Government Railways, and his certificate that he has made careful examination of the surveys, plans and profile of the whole line so contracted for, and has duly considered the physical characteristics of the country to be traversed and the means of transport available for construction, naming the reasonable and probable cost of such construction, may, with the authorization of the Governor in Council, enter into a supplementary agreement, fixing definitely the maximum amount of the subsidy to be paid, based upon the said certificate of the Chief Engineer, and providing that the company shall be entitled to be paid, as the minimum, the ordinary subsidy of $3,200 per mile, together with sixty per cent of the difference between the amount so fixed and the said $3,200 per mile, if any; and the balance, forty per cent, shall be paid only on completion of the whole work subsidized, and in so far as the actual cost, as finally determined by the Chief Engineer, entitles the company thereto: Provided always—

(a.) that the estimated cost, so certified, is not less on the average than $18,000 per mile for the whole mileage subsidized;

(b.) that no payment shall be made except upon a certificate of the Chief Engineer that the work done is up to the standard specified in the company's contract;

(c.) that in no case shall the subsidy exceed the sum of $6,400 per mile.

1. Whenever a contract has been duly entered into with a company for the construction of any line of railway subsidized by either of the Acts mentioned in the preamble, the Minister of Railways and Canals, at the request of the Company and upon the report of the chief engineer of government railways, and his certificate that he has made careful examination of the surveys, plans and profiles of the whole line so contracted for and has duly considered the physical characteristics of the country to be traversed and the means of transport available for construction, naming the probable and reasonable cost of such construction, may, with the authorization of the Governor in Council, enter into a supplementary agreement, fixing definitely the maximum amount of the subsidy to be paid, based upon the said certificate of the chief engineer,

and providing that the company shall be entitled to be paid, as the minimum, the ordinary subsidy of $3,200 per mile, together with sixty per cent of the difference between the amount so fixed and the said $3,200 per mile, if any; and the balance, forty per cent, shall be paid only on completion of the whole work subsidized, and in so far as the actual cost, as finally determined by the chief engineer, entitles the company thereto: Provided always—

(a.) that the estimated cost, so certified, is not less on the average than eighteen thousand dollars per mile for the whole mileage subsidized;

(b.) that no payment shall be made except upon a certificate of the chief engineer that the work done is up to the standard specified in the Company's contract;

(c.) that in no case shall the subsidy exceed the sum of six thousand four hundred dollars per mile.

2. In construing this Act the word "cost" shall have the meaning assigned to it by the Act authorizing the granting of the subsidy.

By Act, 6 Edward VII, Cap 43, 1906, (assented to 13th July, 1906).

1. The Governor in Council may grant a subsidy of $3,200 per mile towards the construction of each of the undermentioned lines of railway (not exceeding in any one case the number of miles hereinafter respectively stated) which shall not cost more on the average than $15,000 per mile for the mileage subsidized, and towards the construction of each of the said lines of railway not exceeding the mileage hereinafter stated, which shall cost more on the average than $15,000 per mile for the mileage subsidized, a further subsidy beyond the sum of $3,200 per mile of fifty per cent on so much of the average cost of the mileage subsidized as is in excess of $15,000 per mile, such subsidy not exceeding in the whole the sum of $6,400 per mile:—

639. To the Manitoulin and North Shore Railway Company (or to the Canada Central Railway Company, with the consent of the Manitoulin and North Shore Railway Company, and subject to the approval of the Governor in Council), for the following lines of Railway:—

(a) From Little Current thence crossing the Canadian Pacific Railway, at or near Stanley, and thence to Sudbury, not exceeding 64 miles.

(b) From a point on the said line of railway, between Little Current and Sudbury, westerly towards the Algoma Central and Hudson Bay Railway, not exceeding 100 miles; and

(c) From a point at or near Sudbury northerly, not exceeding 30 miles; the said subsidies being granted in lieu of the subsidies of 64 and 130 miles, granted by chapter 8 of 1900, section 2, item 6, as amended by section 5 of chapter 7 of 1901, and chapter 7 of 1901, section 2, item 14, respectively.

640. To the Algoma Central and Hudson Bay Railway Company for a line of railway from Sault St. Marie to a point on the Canadian Pacific Railway between White River and Dalton stations in the District of Algoma, not exceeding 200 miles, and, for a line of Railway from Michipicoten Harbour, Lake Superior, towards the main line of the Canadian Pacific Railway not exceeding 25 miles; in lieu of the subsidies of 40, 50 and 135 miles granted by chapter 7 of 1899, section 2, item 23, chapter 8 of 1900, section 2, item 4 and chapter 7 of 1901, section 2, item 20, respectively.

641. To the Lotbinière and Megantic Railway Company to extend its railway southerly from a point at or near Lyster in Megantic County to or towards a point at or near Lime Ridge in the Township of Dudswell: in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 8, not exceeding 50 miles.

642. For a line of railway from Lake Nominingue to La Lièvre, in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 44, not exceeding 35 miles.

643. For a line of railway from a point on the Intercolonial Railway at or near Dartmouth, in the County of Halifax, to Guysborough, in the County of Guysborough, with branch lines to a point on the Intercolonial Railway at or near New Glasgow, in the County of Pictou, and also to Country Harbour, in the County of Guysborough, not exceeding in the whole 236 miles in lieu of subsidies of 116 and 120 miles granted by chapter 57 of 1903, section 2, items 19 and 63 respectively.

644. For a line of railway from Wellington to Union Bay, in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 68, not exceeding 55 miles.

645. For a line of railway from a point at or near Sharbot Lake or Bathurst Station, in the Province of Ontario, or between those points via Lanark Village to Carleton Place, in lieu of the subsidy granted by chapter 7 of 1901, section 2, item 17, not exceeding 41 miles.

646. For a line of railway from Cape Tourmente towards Murray Bay, in lieu of the subsidy granted by chapter 5 of 1892, not exceeding 20 miles.

647. To the Atlantic, Quebec and Western Railway Company, for a line of railway from Gaspé to a point at or near Causapscal on the Intercolonial Railway and from that point to Edmundston, not exceeding 260 miles; and for a line of railway from Paspebiac to Gaspé as near the shore as practicable, not exceeding 102 miles; in lieu of the subsidies granted by chapter 57 of 1903, section 2, item 51.

648. To the Nipigon Railway Company, for the following lines of railway:—

(a) From a point at or near Nipigon Station on the line of the Canadian Pacific Railway to Nipigon Lake, not exceeding 30 miles.

(b) From a point on Nipigon Bay of Lake Superior to a point on the west of Lake Helen on the line of the Nipigon Railway, not exceeding 3½ miles.

(c) From a point on the line of the Nipigon Railway at or near the crossing of the Fraser River, to a point on Lake Jesse, by way of Cameron's Falls, not exceeding 1½ miles.

(d) From a point on the North shore of Lake Nipigon northerly, not exceeding 45 miles;

The said subsidies to the said lines being granted in lieu of the subsidies granted by chapter 34 of 1904, section 2, item 3, not exceeding in the whole 80 miles.

649. For a line of railway from Quebec towards Seven Islands, including branches to Murray Bay and Baie St. Paul, in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 48, not exceeding 200 miles.

650. For a line of railway from Roberval westward towards James Bay, in lieu of the subsidies granted by chapter 57, of 1903, section 2, items 11 and 52, not exceeding 100 miles.

651. To the Quebec Central Railway Company for an extension of its line of railway from St. Francis to St. George not exceeding 9 miles; and for a line of railway from Scott Junction to the Quebec Bridge, not exceeding 23 miles; in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 46.

652. To the Western Alberta Railway Company for a line of railway from a point on the United States Boundary, west of range 21, northwesterly towards Anthracite, in the Province of Alberta, in lieu of the subsidy granted by chapter 34 of 1904, section 2, item 11, not exceeding 50 miles.

653. To the Shediac and Coast Railway Company for a line of railway from Shediac to Shemogue and towards Cape Tormentine in Westmoreland County, in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 17, not exceeding 38 miles.

654. For a line of railway from St. Constant in the County of Laprairie and Napierville, through St. Edouard, St. Cyprien and Lacolle to a point at or near the International boundary line on the Delaware and Hudson Railway (Grand Trunk) lieu of the 19 and 12 mile subsidies granted by chapter 7 of 1899, section 2, item 10 and chapter 4 of 1894 respectively, not exceeding 28 miles.

655. To the Lake Superior, Long Lake and Albany Railway Company for a line of railway from Peninsula Harbour in a northerly direction, in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 76, not exceeding 10 miles.

656. For a line of railway from Owen Sound in the Province of Ontario to Meaford, in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 34, not exceeding 30 miles.

657. To the Kingston, Smith's Falls and Ottawa Railway Company for a line of railway from Kingston to Ottawa, being a revote of the subsidy granted by chapter 4 of 1897, not exceeding 101 miles.

658. To the Lotbinière and Megantic Railway Company, for a line of railway from a point on its line between Lyster and Lime Ridge, to a point at or near the Bridge over the St. Lawrence at or near Quebec, in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 45, not exceeding 30 miles.

659. For a line of railway from a point on the Quebec and Lake St. John Railway, near the River Jeannotte to La Tuque, on the St. Maurice River, in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 57, not exceeding 35 miles.

660. To the Halifax and South Western Railway Company, for a line of railway from a point at or near Halifax, to a point at or near Barrington Passage, (except that part east of Bridgewater which formerly formed part of the line of the Central Railway), in lieu of the 68, 77 and 35 miles of subsidies granted by chapter 57 of 1903, section 2, item 23 (*a*) and (*b*), and item 75, respectively, not exceeding 185 miles.

661. To the Bay of Quinté Railway Company, for a line of railway from a point at or near the Village of Tweed, thence northwesterly to a point at or near the Village of Bannockburn, in the County of Hastings, being a revote in part of the subsidy granted by chapter 7 of 1899, section 2, item 45, and in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 37, not exceeding in all 20 miles.

662. For a line of railway from a point at or near Baptiste, easterly to a point at or near Renfrew, in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 32, not exceeding 75 miles.

663. For a line of railway from the Station of Lac Bouchette, or from a point one mile east of the said station, on the Quebec and Lake St. John Railway, to St. André, in lieu of subsidy granted by chapter 57 of 1903, section 2, item 47, not exceeding 13 miles.

664. For a line of railway from Debert Station, on the Intercolonial Railway, to Debert Coal Mine, in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 20, not exceeding 4½ miles.

665. For a line of railway from a point at or near Toulon, to a point on the Icelandic River, in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 27, not exceeding 35 miles.

666. To the Ontario, Northern and Temagami Railway Company (formerly the Temagami Railway Company), for a line of railway from a point at or near Sturgeon Falls, in a northwesterly direction, to a point on the westerly shore of Lake Temagami, in the District of Nipissing, in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 36, not exceeding 50 miles.

667. To the Quebec and Lake St. John Railway Company, for a line of railway from Roberval to the Government wharf at Lake St. John, in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 40, not exceeding one mile.

668. For a line of railway from Truro northerly towards Brule, in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 64, not exceeding 34 miles.

669. To the Kootenay Central Railway Company, for a line of railway from Golden towards the International Boundary line, via Windermere and Fort Steele, and crossing the Crow's Nest Railway at or near Elko, in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 66, not exceeding 186 miles.

670. To the Brockville, Westport and Sault Ste. Marie Railway Company, the balance remaining unpaid of the subsidy granted by chapter 3 of 1889, not exceeding $3,200 per mile, and also the balance remaining unpaid of the subsidy granted by chapter 2 of 1890, which was regranted by chapter 5 of 1892; the whole not exceeding $86,800, being a revote of the subsidy granted by chapter 4 of 1894, and that the said subsidy or so much thereof as has heretofore been agreed upon by the terms of an agreement filed in the Department of Railways and Canals between said Brockville, Westport and Sault St. Marie Railway Company and the creditors of said Railway Company, to be paid over to the said creditors or the legal representatives of said creditors as mentioned in said agreement.

671. For a line of railway from Jonquieres to La Baie des Ha Ha, in lieu of subsidy granted by chapter 57 of 1903, section 2, item 7, not exceeding 20 miles.

672. For a line of railway from St. Rose via the east side of Lake Ainslie to or towards Orangedale on the Intercolonial Railway, not exceeding 34 miles; and for a line of railway from a point on the Intercolonial Railway at or near Mines Road Station to the wharf at Caribou Cove not exceeding four miles; in lieu of the subsidy granted by chapter 57 of 1903, section 2, items 18 and 62.

673. For a line of railway from a point at or near Wolfville on the Dominion Atlantic Railway to the Government Pier at the Basin of Minas, not exceeding one mile, in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 25.

674. To the Great Northern Railway of Canada for a line of railway in extension of its railway from a point at or near Arundel to a point in the municipality of the United Townships of Preston and Hartwell, not exceeding 30 miles; and for a line of railway connecting its Montford and Gatineau line with the main line at St. Jerome, not exceeding 22 miles; in lieu of the subsidies granted to the Montford and Gatineau Colonization Railway Company by items 6 and 41 of section 2 of chapter 57 of 1903.

675. To the Great Northern Railway of Canada, for a line of railway from, at or near Garneau Junction to or towards the Quebec Bridge, not exceeding 70 miles, in lieu of the subsidy granted by item 74 of section 2, of chapter 57 of 1903.

676. For a line of railway from a point at or near Ste. Agathe des Monts Station towards the Township of Howard, in the County of Argenteuil, passing near Lakes St. Joseph and Ste. Marie, in a southerly direction, not exceeding 15 miles; and for a line of railway between a point in the parish of St. Andrews, in the County of Argenteuil, and a point in the parish of St. Laurent, in the County of Jacques Cartier, passing through the parishes of St. Placide, St. Eustache and St. Martin, not exceeding 38 miles; in lieu of the subsidies granted by chapter 34 of 1904, items 8 and 9 of section 2, not exceeding in the whole 53 miles.

677. To the Kettle River Valley Railway Company for a line of railway from Grand Forks to a point 50 miles up the North Fork of Kettle River, in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 67, not exceeding 50 miles.

678. To the Ottawa Northern and Western Railway for a line of railway from Aylmer to a point of junction with the Interprovincial Bridge approach in the City of Hull (except that portion thereof beginning at a point of junction with the line of the Hull Electric Railway in the City of Hull and terminating at a point on the main line of the Canadian Pacific Railway at the east end of its Hull Station yard) not exceeding nine miles, in lieu of the subsidy granted by item 12 of section 2 of chapter 7, of 1899, and by the first portion of item 13 of section 2 of chapter 57 of 1903.

679. To the Toronto, Lindsay and Pembroke Railway Company, for a line of railway from Golden Lake to Bancroft, in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 3, not exceeding 51 miles.

680. To the Interprovincial and James Bay Railway Company, for a line of railway from the Lake Temiskaming at the present terminus of the Canadian Pacific Railway in a northerly direction, in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 42, not exceeding 50 miles.

681. For a line of railway from Waltham Station to Ferguson Point, in the County of Pontiac, in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 43, not exceeding 20 miles.

682. To the Matane and Gaspé Railway Company, for a line of railway from a point at or near St. Octave, on the Intercolonial Railway, to Matane, in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 54, not exceeding 30 miles.

683. For a line of railway from the Village of Haliburton, via the Village of Whitney, towards the Town of Mattawa, Ontario, in lieu of the subsidies granted by chapter 7 of 1899, section 2, item 25, and chapter 8 of 1900, section 2, item 9, not exceeding 60 miles.

684. For a line of railway from Dawson to Stewart River, passing at or near Grand Forks, in lieu of the subsidy granted by chapter 57 of 1903, section 2, item 71, not exceeding 84 miles.

2. That unless the context otherwise requires, the expression "cost" means the actual, necessary and reasonable cost, and shall include the amount expended upon any bridge up to and not exceeding $25,000, forming part of the line of railway subsidized not otherwise receiving any bonus, but shall not include the cost of equipping the railway, nor the cost of terminals, nor the cost of right of way of the railway in any city or incorporated town; and such actual, necessary and reasonable cost shall be determined by the Governor in Council, upon the recommendation of the Minister of Railways and Canals, and upon the report of the Chief Engineer of the Department of Railways and Canals, certifying that he has made or caused to be made an inspection of the line of railway for which payment of subsidy is asked, and careful inquiry into the cost thereof, and that in his opinion the amount upon which the subsidy is claimed is reasonable, and does not exceed the true, actual and proper cost of the construction of such railway.

3. That the subsidies to be authorized towards the construction of any railway shall be payable out of the Consolidated Revenue Fund of Canada, and may, unless otherwise expressly provided herein, at the option of the Governor in Council, on the report of the Minister of Railways and Canals, be paid as follows:—

(*a*) upon the completion of the work subsidized; or

(*b*) by instalments, on the completion of each ten-mile section of the railway, in the proportion which the cost of such completed section bears to that of the whole work undertaken: or

(*c*) upon the progress estimates on the certificate of the Chief Engineer of the Department of Railways and Canals, that, in his opinion, having regard to the whole work undertaken and the aid granted, the progress made justifies the payment of a sum not less than thirty thousand dollars; or

(*d*) with respect to (*b*) and (*c*), part one way, part the other.

4. That the subsidies to be authorized to be granted to companies named shall, if granted by the Governor in Council, be granted to such companies respectively; the other subsidies may be granted to such companies as established to the satisfaction of the Governor in Council their ability to construct and complete the said railways respectively; all the lines for the construction of which subsidies are granted, unless they are already commenced, shall be commenced within two years from the first day of August, 1906, and completed within a reasonable time, not to exceed four years from the said first day of August, to be fixed by the Governor in Council, and shall also be constructed according to descriptions, conditions and specifications approved by the Governor in Council on the report of the Minister of Railways and Canals, and specified in each case in a contract between the company and the said Minister, which contract the Minister, with the approval of the Governor in Council, is hereby empowered to make. The location also of such subsidized lines shall be subject to the approval of the Governor in Council.

5. That the granting of such subsidies, and the receipt thereof by the respective companies, shall be subject to the condition that the Board of Railway Commissioners for Canada may at all times provide and secure to other companies such running powers, traffic arrangements and other rights, as will afford to all railways connecting with the railways so subsidized, reasonable and proper facilities in exercising such running powers, fair and reasonable traffic arrangements with connecting companies, and equal mileage rates between all such connecting railways; and the said Board shall have absolute control, at all times, over the rates and tolls to be levied and taken by any of the companies, or upon any of the railways so subsidized: Provided always that any

decision of the said Board made under this section may be at any time varied, changed, or rescinded by the Governor in Council as he deems just and proper.

6. That every company so receiving a subsidy, its successors and assigns, and any person or company controlling or operating the railway or portion of railway so subsidized, shall each year furnish to the Government of Canada, transportation for men, supplies, materials and mails, over the portion of the lines in respect of which it has received such subsidy, and whenever required, shall furnish mail cars properly equipped for such mail service ; and such transportation and service shall be performed at such rates as are agreed upon between the Minister of the Department of the Government for which such service is being performed, and the company performing it, and, in case of disagreement, then at such rates as are approved by the Board of Railway Commissioners for Canada ; and in or towards payment for such charges the Government of Canada shall be credited by the company with a sum equal to three per cent per annum on the amount of the subsidy so received by the company.

7. That as respects all railways for which subsidies are granted, the company at any time owning or operating any of the railways shall, when required, produce and exhibit to the Minister of Railways and Canals, or any person appointed by him, all books, accounts and vouchers, showing the cost of constructing the railway or bridge, the cost of operating it, and the earnings thereof.

8. That the Governor in Council may make it a condition of the grant of the subsidies herein provided, that the company shall lay its road with new steel rails, made in Canada, if they are procurable in Canada of suitable quality, upon terms as favourable as other rails can be obtained, of which the Minister of Railways and Canals shall be the judge.

9. That whenever a contract has been duly entered into with a company for the construction of any line of railway so subsidized, the Minister of Railways and Canals, at the request of the company, and upon the report of the Chief Engineer of the Department of Railways and Canals, and his certificate that he has made careful examination of the surveys, plans and profile of the whole line so contracted for, and has duly considered the physical characteristics of the country to be traversed and the means of transport available for construction, naming the reasonable and probable cost of construction, may, with the authorization of the Governor in Council, enter into a supplementary agreement, fixing definitely the maximum amount of the subsidy to be paid, based upon the said certificate of the Chief Engineer, and providing that the company shall be entitled to be paid, as the minimum, the ordinary subsidy of $3,200 per mile, together with sixty per cent of the difference between the amount so fixed and the said $3,200 per mile, if any ; and the balance, forty per cent, shall be paid only on completion of the whole work subsidized, and in so far as the actual cost, as finally determined by the Governor in Council upon the recommendation of the Minister of Railways and Canals and upon the report and certificate of the said Chief Engineer, entitles the company thereto ; Provided always :—

(*a*) that the estimated cost, as certified, is not less on the average than $18,000 per mile for the whole mileage subsidized :

(*b*) that no payment shall be made except upon a certificate of the Chief Engineer that the work done is up to the standard specified in the company's contract ;

(*c*) that in no case shall the subsidy exceed the sum of $6,400 per mile.

PART IV

MISCELLANEOUS STATEMENTS

No.

Subsidy Agreements for the Construction of Railways

No. of Contract.	Date of Signature.	Name of Railway.	Line of Railway to be Constructed.	Authority for Execution.	
				Act of Parliament.	Order in Council.
15979	Sept. 6, 1905	Central Ontario Ry....	From point near Bancroft to point near Whitney.	Can., 1903, c. 57.	July 22, 1905
16127	Mar. 20, 1906	Canadian Pacific Ry. Co.	From St. Philippe d'Argenteuil Station, &c., northerly.	Can., 1904, c. 34.	Nov. 8, 1905, & Feb. 19, 1906
16237	June 26, 1906	Chateauguay & Northern Ry. Co.	From point in Hochelaga Ward, Montreal, to point on G.N.Ry., in or near Joliette, &c.	Can., 1904, c. 34.	Feb. 16, 1906
15977	July 28, 1905	Kettle River Valley Ry. Co.	From Grand Forks to a point 50 miles up Kettle River.	Can., 1903, c. 57.	July 28, 1905
16197	May 25, 1906	Klondike Mines Ry. Co.	From Dawson to Stewart River..	Can., 1903, c. 57.	May 7, 1904
16235	June 23, 1906	Kootenay Central Ry. Co.	From Golden to International Boundary Line via Windermere and Fort Steele, &c., through Crow's Nest Pass, at or near Elko.	Can., 1903, c. 57.	May 14, 1906
15917	July 5, 1905	Mabou & Gulf Ry. Co., Ltd.	From Mabou Coal Mines to point near Glendyer, thence to Orangedale on I.C.Ry.	Can., 1903, c. 57.	June 28, 1905
15956	July 28, 1905	Midway & Vernon Ry. Co.	From Midway to Vernon	Can., 1903, c. 57.	July 28, 1905

Department of Railways and Canals,
Ottawa, August 20, 1906.

1.

entered into during the Fiscal Year ended June 30, 1906.

Amount of Subsidy.		Number of Miles Subsidized.	Maximum Grade. Feet per Mile.	Radius of Curvature not less than.	Width of Clearing each side.	Width of Cutting.	Embankment.	Steel Rails, lb. per Lineal Yard.	Date for Completion.
Per Mile.	Not exceeding								
$	$		Feet.	Feet.	Feet.	Feet.	Feet.	Lb.	
3,200	6,400	40	80	819	50	20	15	56	Aug. 1, 1907
3,200	6,400	3	116	478	50	16 & 20	14	56	Nov. 1, 1906
3,200	6,400	42	37	1,433	50	20	15	56	June 30, 1906
3,200	6,400	50	80	478	50	20	15	56	Aug. 1, 1907
3,200	6,400	84	184·80	230	30	14	10½	45	Aug. 1, 1907
3,200	6,400	186	52 80	573	50	20 & 18	14	56	Aug. 1, 1907
3,200	6,400	34	224	528	50	20	15	56	July 1, 1907
3,200	6,400	150	106	478	50	20	15	56	July 1, 1907

HAZEN HANSARD,
Law Clerk.

No. 2.

CONTRACTS entered into during the Fiscal Year ended June, 1906.

INTERCOLONIAL RAILWAY.

No. of Contract.	Date of signature.	Contractors.	General Description.
	1905.		
15951	Aug. 8	Zenon Ouellette	Erect station at St. Moise, Que.
15953	" 15	J. B. McManus, Ltd	Construct double track diversion at Birch Cove, N.S.
15955	" 15	Thos. A. Barnhill	Erect combined station and dwelling, &c., at McKay's Siding, N.S.
*15970	" 22	John Starr, Son & Co., Ltd	Wiring second story of freight shed on pier No. 2, Halifax, N.S.
15973	Sept. 6	J. W. Mitchell	Addition to baggage room, &c., at River John, N.S.
15986	" 15	H. Dixon	Erect station and dwelling, platform and freight shed at Aulac, N.S.
15996	" 25	Thos. A. Barnhill	Erect stations at Woodburn, Lorne and Union, N.S.
16004	Oct. 3	D. J. McDonald	Wiring of station at Stellarton, N.S.
16005	" 25	A. P. C. Clark	Erect train house and baggage room at St. John, N.B.
*16010	Mar. 9	Quebec Electric Company	Wiring of umbrella roofs at Levis, Que.
16014	Nov. 2	J. W. Dobson	Erect creosoted pile wharf at Pictou, N.S.
16021	Oct. 2	St. John Railway Company	Wiring new round house, &c., at St. John, N.B.
16020	" 10	Dominion Iron & Steel Company.	Deliver 25,000 tons of steel rails.
16024	" 2	Dixon & Falconer	Erect combined station and dwelling, and combined freight shed and baggage room at McIntyre's Lake, N.S.
16028	Nov. 20	Morrison & Finlayson	Construct 4,000 feet of railway from N. Sydney to Sydney Mines, N.S.
16029	" 24	Joseph Gosselin	Construct substructures of bridges at St. Leonard Junction and Mitchell station, Que.
16042	" 15	Quebec Electric Company	Wiring of station at Drummondville, Que.
16043	" 26	Rathbun Company	Deliver 25 box cars.
16047	Dec. 9	Crossen Car Manufacturing Co., Ltd	" 75 "
16057	" 18	Rhodes, Curry & Co., Ltd	" 100 "
16059	" 18	" "	" 20 conductors' vans.
	1906.		
16063	Jan. 3	Emil A. Wallberg	Supply Mumford boilers, &c., for engine house at Truro, N.S.
16064	" 3	W. A. Hattie	Erect telegraph office at Pirate Harbour, N.S.
16065	" 3	Rhodes, Curry & Co., Ltd.	Deliver 25 refrigerator cars.
16066	" 4	D. G. Kirk	Construct creosoted piles for pier No. 8, Halifax, N.S.
16070	" 4	Copp, Dixon & Co	Erect freight shed and baggage room at Painsec Junction, N.B.
16071	" 4	Peter Campbell	Installation of heating plant in dwelling house at Moncton, N.B.
16072	" 4	Freeze Brothers	Construct galvanized iron cornice on roof of car shop at Moncton, N.B.
16073	" 4	Geo. St Pierre & Co	Erect station, freight shed, &c., at Mitchell, Que.
16078	" 4	Rhodes, Curry & Co., Ltd	Deliver 750 33 in. car wheels.
16079	" 4	" "	" 2,500 "
16084	" 15	Jas. F. Falconer & Son	Erect addition to freight shed at Stellarton, N.S.
16085	" 15	Rhodes, Curry & Co., Ltd	Deliver 10 first class cars.
16088	" 20	W. A. McKay & Co	Wiring of Station at Sydney, N.S.
16089	" 15	L. H. Estano	Supplying and fitting of 12 water closets in cottages at Moncton, N.B.
16093	Feb. 1	Emil A. Wallberg	Erect water tanks at Gibson, Upper Cross Creek, Boiestown, Blackville, Chatham Junction and Loggieville, Moncton and Ste. Flavie District; and at Drummondville, Ste. Flavie and Montreal District.
16095	" 1	John McDougall & Co	Deliver 1,500 33 in. car wheels.
16096	" 1	Clouthier & Gaudreau	Remodelling of station at L'Islet, Que.
16101	" 1	Emil A. Wallberg	Erect water tanks at Truro, N.S., and at Rivière du Loup, Que.
16102	" 1	"	Erect engine house, &c., at Pictou, N.S.

SESSIONAL PAPER No. 20

CONTRACTS entered into during the Fiscal Year ended June, 1906—*Continued.*

INTERCOLONIAL RAILWAY—*Continued.*

No. of Contract.	Date of signature.	Contractors.	General Description.
	1906.		
16104	" 20	Locomotive & Machine Co., Ltd.	Deliver 16 passenger engines, 'Pacific type.'
16107	" 15	Rhodes, Curry & Co., Ltd.	" 10 first-class cars.
16111	Jan. 22	Emil A. Wallberg	Supply fan system of heating for car shop at Moncton, N.B.
16117	Mar. 1	Canadian Locomotive Co., Ltd.	Deliver 20 freight engines and 3 shunting engines.
16120	" 16	Willard Kitchen	Construct spur line of railway from Fort Lawrence to Fort Lawrence Wharf, N.S.
16130	" 20	Zenon Ouellette	Erect ice house at Rivière Ouelle Wharf, Que.
16137	" 30	Crossen Car Manufacturing Co., Ltd	Deliver 5 combined vestibule second-class sleeping and baggage cars.
16141	Apr. 4	Farquhar Bros	Wiring of freight shed No. 8, Halifax, N.S.
16149	" 9	Town of Fraserville	Wiring of engine house and annex at Rivière du Loup, Que.
16152	" 9	Willard Kitchen	Erect addition to station and freight shed at Norton, N.B.
16153	Mar. 30	Dominion Dump Car Co.	Construct and use 130 dump cars covered by patent.
16155	" 9	Cie d'Aqueduc du Cap St. Ignace	Water at Cap St. Ignace Station, Que.
16157	Apr. 17	Farquhar Bros	Wiring of new station at Pictou, N.S.
16158	" 9	Quebec Electric Company..	Wiring of engine house, machine shop, boiler room, &c., at Chaudière Junction, Que.
16166	" 5	Emil A. Wallberg	Erect addition to engine house at Stellarton, N.S.
16167	" 19	"	Construct umbrella roofs over platform at Sydney, N.S.
16172	" 6	Rhodes, Curry & Co., Ltd.	Deliver 100 box cars.
16199	Mar. 1	The Rathbun Co.	" 2 flanger cars.
16219	Jan. 6	Rhodes, Curry & Co., Ltd.	" 10 snow ploughs and 2 double track ploughs and flangers.
16225	June 14	R. H. Canavan	Erect addition to freight shed at Windsor, N.S.
16234	" 20	John H. McKay	Erect station, dwelling, &c., at Belmont, N.S.
16248	" 8	Dominion Bridge Co., Ltd.	Erect bridges at Nauwigewauk and St. John, N.B.

PRINCE EDWARD ISLAND RAILWAY.

	1905.			
15954	Aug.	8	Ignatius Roach	Erect 8 section tool house on the Murray Harbour Branch.
*16006	June	26	Willard Kitchen	Deliver 8,500 lineal feet of portable snow fence.
16031	Nov.	22	A. E. Leigh	Telegraph lines.
16041	Dec.	2	J. M. Clark & Co.	Erect agent's dwelling at Freetown, P.E.I.
16046	"	9	Willard Kitchen	Erect creosoted pile wharf and freight shed at Georgetown, P.E.I.
16087	"	1	Rhodes, Curry & Co., Ltd.	Deliver 300 car wheels.
	1906.			
16124	Mar.	20	Emil A. Wallberg	Erect stone passenger station and baggage room at Charlottetown, P.E.I.
16136	"	26	M. F. Schurman & Co.	Erect freight shed at Kensington, P.E.I.
16159	April	16	B. D. Huntley	Supply and erect 15 water closets on the Murray Harbour and Montague branches.
16164	"	23	J. M. Clark & Co.	Construction and plumbing of water closets and toilet rooms in Summerside station, P.E.I.
16202	Jan.	3	M. F. Schurman & Co.	Deliver 8,000 ft. of portable snow fence.
16211	June	4	Willard Kitchen	Erect water tank at Montague, P.E.I.
16212	"	4	"	Works at Montague and Murray Harbour.
16224	"	14	Thomas Campbell	Surfacing of roadway on approaches to Hillsborough Bridge, P.E.I.
16248	"	8	Dominion Bridge Co., Ltd.	Erect bridge at Brudenel, P.E.I.

CONTRACTS entered into during the Fiscal Year ended June 30, 1906—*Continued.*

CARILLON CANAL.

No. of Contract.	Date of signature.	Contractors.	General Description.
	1905.		
16032	Nov. 29	T. Ross & Sons & Ayers.....	Lighting of canal.

CHAMBLY CANAL.

	1906.		
16215	June 7	Phœnix Bridge & Iron Works, Ltd	Erect swing bridge at Riley's Crossing, Que.

CORNWALL CANAL.

	1905.		
15943	July 17	L. S. Macoun.....	Supply shafting, hangers, pulleys, &c.
15987	Sept. 15	Wm. M. Leacy.....	Riprap and filling in near foot of canal.

GALOPS CANAL.

	1906.		
16229	June 16	Quinlan & Robertson	Erect wharf near west end of 'Deep Cut,' Cardinal, Ont.

GRENVILLE CANAL.

	1905.		
16032	Nov. 29	T. Ross & Sons & Ayers	Lighting canal.

LACHINE CANAL.

	1905.		
15926	July 7	P. Leduc.....	Erect 5 lock and 5 bridge houses.
15966	Aug. 16	Dominion Bridge Co., Ltd..	Erect swing bridge at Atwater Avenue, Montreal.
16012	Nov. 2	Quinlan & Robertson	Erect wharf at Lachine, Que.
16013	Oct. 3	"	Erect wharf and sidewalks at entrance to Lock No. 1.
	1906.		
16165	April 23	Canadian Portland Cement Co...	Deliver 4,000 brls. cement.
16181	May 4	Quinlan & Robertson.....	Raising of sheds Nos. 4 and 5, Basin No, 2.
16195	April 17	"	Erect concrete wall at St. Gabriel Basin No. 1.
16198	May 26	"	Paving of approaches to swing bridges.
16200	" 14	Canadian Agency & Supply Co..	Deliver 3,000 brls. cement.
16245	June 28	Lymburner & Matthews.	Supply machinery to operate lock gates.

RIDEAU CANAL.

	1905.		
15944	Aug. 12	Ottawa Lumber Co..	Deliver 90,000 ft. b. m. hemlock timber.
15949	July 22	International Portland Cement Co., Ltd.	" 1,500 brls. cement.
15976	Sept. 15	M. L. Wilson..... .. .	Drill well at lock house at Davis' Station.
15991	" 20	M. Ryan.....	Deliver timber for 1905-6.
	1906.		
16142	April 4	Ottawa Lumber Co.....	Deliver 369 pieces B.C. or Douglas fir dimension timber.

CONTRACTS entered into during the Fiscal Year ended June 30, 1906—*Concluded.*

SOULANGES CANAL.

No. of Contract.	Date of signature.	Contractors.	General Description.
	1905.		
16008	Oct. 20	John Bertram & Sons Co., Ltd .	Deliver machinery.
16009	" 20	Railway Spring & Supply Co ...	" "
16017	Nov. 10	Watson Jack & Co.....	" "

ST. OURS LOCK.

	1905.		
16056	Dec. 15	Locomotive & Machine Co. of Montreal, Ltd.	Deliver I beams and hand railing for landing wharfs above and below lock.

WELLAND CANAL.

	1905.		
15967	Aug. 21	M. J. Hogan	Construct new docking along old west pier of Port Colborne entrance.
16074	Dec. 15	"	Supplementary to contract No. 15967.
	1906.		
16103	Feb. 14	Niagara Falls Machine & Foundry Co., Ltd.	Supply iron and brass castings for 1906.
16119	Mar. 3	J. H. Kratz & Co.....	Supply timber, lumber, &c., for 1906.
16122	Feb. 14	McCleary & McLean...	" " "
16123	Mar. 20	Mason, Gordon & Co	" " "
16161	April 23	Joseph Battle.....	Construct retaining wall on east side of rock cut near Raney's Bend.

*Too late for last year's report.

HAZEN HANSARD,
Law Clerk.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, August 20, 1906.

No.

No. 3.—Water Power and other Public Property leased by the Department

1.—INTERCOLONIAL

No. of Lease.	Date of Signature.	Lessee.	Property Leased.
	1905.		
15930	July 30..	Alice E. Jones	Land at Moncton, N.B.
16001	Oct. 3..	Sussex Packing Co	Privilege to lay a 2-in. pipe at Sussex, N.B
16003	" 18..	Geo. B. Martin	Land at Assametquaghan, Que.
16015	Nov. 2..	City of Sydney	Privilege to lay a 6-in. pipe at Prince St., Sydney, N.S
16069	Dec. 30..	F. George	Land at Folleigh Lake, N.S.
16081	" 30..	W. R. Steeves	Land at Beaver Brook Station, N.B.
	1906.		
16086	Jan. 23..	A. M. Rowan	N. end of shed No. 12 on Ballast Wharf, St. John, N.B
16097	Feb. 6..	D. E. Read	Land at Pictou Landing, N.S.
16112	" 22..	G. E. Patterson	Land at Marshy Hope Station, N.S.
16125	Mar. 13..	Imperial Oil Co., Ltd.	Land at St. Paschal and St. Jean Port Joli, Que.
16160	" 1..	A. McMullen	Land at Wentworth, N.S.
16168	" 2..	M. J. McNeil	Land at Boisdale, N.S.
16169	Apr. 11..	D. E. McKeigan	Land at Leitches Creek, N.S.
16189	May 12..	Acadia Coal Co., Ltd	Land at Pictou Landing, N.S.
16191	" 2..	Price Bros	Privilege to stretch wire across railway at point ½ mile W. of Salmon Lake Station, Que.
16192	" 14..	Intercolonial Coal Mining Co., Ltd.	Land at Deep Water Terminus, Halifax, N.S
16196	" 22..	Theo. Fournier	Privilege to lay water pipe at Sayabec, Que.
16217	June 6..	Albert Mfg. Co. of Hillsborough	Land at Salisbury Station, N.B.
16218	" 6..	B. Leclaire & A. Daigle	Land at Tartague, Que.
16220	" 6..	Central Telephone Co.	Privilege to stretch wires at Matapedia Bridge, &c.
16226	" 6..	New Glasgow Electric Light Co.	Privilege to erect electric line across railway and along right of way at New Glasgow, N.S.
16230	June 18..	Kate A. Brown	Land at Salisbury Station, N.B.
16233	" 18..	His Majesty the King	Rooms on ground floor of building No. 3, and rooms on 2nd floor of building No. 5, King St., St. John, N.B.
16249	" 28..	H. J. B. Woods	Land at N. Sydney, N.S.

PRINCE EDWARD

	1906.		
16246	June 28..	M. P. Driscoll	Land at Freetown, P.E.I.
	1905.		
16254	Aug. 24..	Province of P. E. Island.	Land between Souris Beach and Souris Road, King's Co.

3.

of Railways and Canals during the Fiscal Year ended June 30, 1906.

RAILWAY.

Area.	Amount of Water Power.	Term.	Commencement of Term.	Terms of Payment.		
				Annual Rental.	Due each Year.	First Instalment due.
			1905.	$ cts.		
6·3 acres		During pleasure	June 1, 1905	15 00	June 1	June 1, '05
		"	July 1, 1905	1 00	July 1	July 1, '05
10,000 sq. ft.		"	" 1, 1905	1 00	" 1	" 1, '05
		"	" 1, 1905	2 00	" 1	" 1, '05
0·09 acres		"	" 1, 1905	1 00	" 1	" 1, '05
375 sq. ft.		"	" 1, 1905	1 00	" 1	" 1, '05
		"	" 1, 1905	100 00	" 1	" 1, '05
0·6 acre		"	Dec. 1, 1905	5 00	Dec. 1	Dec. 1, '05
480 sq. ft.		"	July 1, 1905	1 00	July 1	July 1, '05
480 sq. ft.		"	" 1, 1905	10 00	" 1	" 1, '05
0·53 acre		"	Mar. 1, 1906	5 00	Mar. 1	Mar. 1, '06
1,750 sq. ft.		"	July 1, 1905	1 00	July 1	July 1, '06
312 sq. ft.		"	" 1, 1905	1 00	" 1	" 1, '06
5·79 acres		"	" 1, 1905	1 00	" 1	" 1, '06
		"	Mar. 1, 1906	5 00	Mar. 1	Mar. 1, '06
160 sq. ft.		"	Jan. 1, 1906	1 00	Jan. 1	Jan. 1, '06
		"	Oct. 15, 1903	Water at Sayabec Station	Oct. 14	Oct. 14, '04
2,450 sq. ft.		"	July 1, 1905	1 06	July 1	July 1, '05
660 sq. ft.		"	" 1, 1905	1 00	" 1	" 1, '05
		"	Mar. 1, 1906	19 00	Mar. 1	Mar. 1, '06
		"	May 1, 1906	25 00	May 1	May 1, '06
2,000 sq. ft.		During pleasure	July 1, 1905	1 00	July 1	July 1, '05
		4½ years	Feb. 1, 1906	950 00	Quarterly.	May 1, '06
120 sq. ft.		During pleasure	Jan. 1, 1906	1 00	Jan. 1	Jan. 1, '06

ISLAND RAILWAY.

600 sq. ft.		During pleasure	July 1, 1906	1 00	July 1	July 1, '06
4·21 acre		"	Aug. 24 1905	1 00		

No. 3.—Water Power and other Public Property leased by the Department of

CHAMBLY

No. of Lease.	Date of Signature.	Lessee.	Property leased.
	1906.		
16113	Feb. 24..	Singer Mfg. Co.....	Priv. to lay 24-in. pipe across lands and under canal at St. Johns, Que.

CORNWALL

	1905.		
15927	July 20..	Lake View Cheese Mfg. Association.	Pt. lot 26, 1st con., tp. of Cornwall, Co. of Stormont, Ont.

GALOPS

	1906.		
16240	June 23..	E. V. Dodge..	Land on N. side of old canal at W. end of Cardinal Village.

LACHINE

	1905.		
15928	July 20..	Grand Trunk Ry. Co. of Canada.	Priv. to lay a spur line on N. bank of canal.... ...
15971	Aug. 15.	Canada Car Co., Ltd.....	Priv. to lay 16-in. pipe from canal to lot 3603, Cote St. Paul, and draw water.
15978	Sept. 15..	Grand Trunk Ry. Co. of Canada.	Priv. to lay 2 sidings on N. bank of canal.....
15994	July 27..	" "	Priv. to lay spur lines on S. bank of canal.....
16030	Nov. 24..	Canadian Carbonate Co.....	Priv. to lay a 1-in pipe from canal to lot 3519, Cote St. Paul, and draw water.
	1906.		
16098	Feb. 10..	Montreal Rolling Mills Co.....	Priv. to place post to support corner of overhead conveyor.
16108	" 10..	Standard Chemical Co. of Toronto, Ltd.	Priv. to lay 6-in. pipe and draw water. .....
16109	" 19..	Ogdensburg Coal & Towing Co..	Land in Town of St. Henri, Que..... ... . .
16116	Mar. 7..	Montreal & Southern Counties Ry.	Priv. to lay line of electric railway on Riverside and Mill Sts. and cross Black's Bridge, Montreal.
16132	" 22..	Quinlan & Robertson.....	Wharf lot No. 7 on S. E. side of Wellington Basin, Point St. Charles, Montreal.
16135	" 27..	Northern Electric & Mfg. Co., Ltd.	Priv. to lay 12-in. supply pipe and 16-in. discharge pipe from New St. Gabriel Basin No. 4 to lot 1198, St. Ann's Ward, Montreal, and draw water.
16188	May 12..	Ottawa Forwarding Co., Ltd....	Flour shed No. 3, Basin No. 3.... .....
16201	" 25..	J. H. Hutchison	Priv. to lay a 2-in. pipe from canal to lots 2155 and 2158, St. Henri, Par. of Montreal, and draw water.
16210	" 28..	G. A. Grier.....	Land on N. side of canal at Montreal, and privilege to build a wharf.
16214	June 4..	Wm. Rutherford & Sons Co., Ltd.	Priv. to lay 5-in. pipe to lot 2287, Par. of Montreal, and draw water.
16241	" 22..	Sessemwein Bros.....	Lot No. 8, S. E. side of Wellington Basin, Montreal.

Railways and Canals during the Fiscal Year ended June 30, 1906—*Continued.*

CANAL.

Area.	Amount of Water Power.	Term.	Commencement of term.	Terms of Payment.		
				Annual Rental.	Due each year.	First instalment due.
				$ cts.		
....	....	During pleasure ...	Jan. 1, 1906	10 00	Jan. 1....	Jan. 1, '06

CANAL.

0·28 acre	.....	During pleasure....	April 1, 1905	1 00	April 1...	April 1, '05

CANAL.

0·17 acre	....	During pleasure....	Jan. 1, 1906	30 00	Jan. 1....	Jan. 1, '06

CANAL.

.....	... .	21 years	July 1, 1904	1 00	July 1....	July 1, '04
....	.....	During pleasure ..	April 1, 1905	780 00	April 1...	April 1, '05
.....	.....	"	Aug. 1, 1905	5 00	Aug. 1....	Aug. 1, '05
.....	.....	21 years	July 1, 1905	5 00	July 1....	July 1, '05
.....	... .	During pleasure....	Sept. 1, 1905	10 00	Sept. 1....	Sept. 1, '05
.....	.....	"	Jan. 1, 1906	1 00	Jan. 1...	Jan. 1, '06
....	.....	"	" 1, 1906	210 00	" 1....	" 1, '06
4,200 sq. ft....	....	"	" 1, 1905	84 00	" 1....	" 1, '06
.....	....	21 years.....	Mar. 1, 1906	190 00	Mar. 1...	Mar. 1, '06
17,680 sq. ft...	.....	During pleasure....	May 1, 1906	212 00	May 1....	May 1, '06
.....	... .	"	July 1, 1906	780 00	July 1...	July 1, '06
....	....	"	May 1, 1906	170 00	May 1....	May 1, '06
....	.....	" ...	" 1, 1906	30 00	" 1....	" 1, '06
....	....	"	" 1, 1906	60 00	" 1 ..	" 1, '06
.....	.....	"	" 1, 1906	150 00	" 1....	" 1, '06
17,680 sq. ft...	.....	"	June 1, 1906	212 00	June 1...	June 1, '06

No. 3.—Water Power and other Public Property leased by the Department of

RAPIDE PLAT

No. of Lease.	Date of Signature.	Lessee.	Property Leased.
	1906.		
16110	Feb. 23..	Morrisburg Village..	Land in Village of Morrisburg and surplus water...

RIDEAU

	1905.		
15968	Aug. 15..	R. F. Rowan and John H. Birkett.	Privilege to dredge material from bed of canal between Kingston Mills and Jones Falls.
	1906.		
16203	May 28..	St. Patrick's Orphan Asylum of Ottawa,	Pt. Lot 22, Gore of Gloucester, Co. of Carleton, Ont.
16227	June 6..	Wm. J. Brown.....	Pt. Lot 4, Con. I, Township of Oxford, Co. of Grenville, Ont.

TRENT

	1905.		
15995	Sept. 25..	Peterborough Golf and Country Club.	Pt. E½ Lot 2, Con. 12, Township of Douro.... ....
	1906.		
16118	March 6..	The James Bay Ry. Co.....	Pt. Lot. 13, Township of Mara, Ont., and privilege to erect swing bridge thereon.
16209	June 4..	Crushed Stone, Ltd....	Pts. 48 and 32, Con. 8, and pt. 49, Con. 9, Township of Eldon, Co. of Victoria, Ont., and use of stone.

WELLAND

	1905.		
15922	July 8.	Lincoln Electric Light and Power Co., Ltd.	Privilege to lay cable above Lock No. 2. .....
15965	Aug. 21.	Town of Welland.....	Privilege to make connection by sewer pipe with Government drain.
16058	Dec. 22..	City of St. Catharines.	Water power from canal on Lake Erie level at Allanburg.
16080	" 29..	M. Beatty & Sons, Ltd	Pt. 26, Con. 5, and pts. 26, Con. 6, Township of Crowland, Co. of Welland, Ont.
	1906.		
16128	Mar. 22 .	Lincoln Electric Light and Power Co., Ltd.	Privilege to erect an electric line at lower end of Lock 3.
16143	" 31..	Hamilton Cataract Power, Light and Traction Co., Ltd.	Water power..... ....
16170	April 21..	Toronto and Niagara Power Co..	Two parcels of land, 100 ft. square, in Township of Thorold, Co. of Welland, Ont., and privilege to erect thereon transmission towers, to carry wires over canal.
16213	June 5..	Niagara, St. Catharines and Toronto Ry. Co,	Privilege to erect swing bridge at Guard Lock, Thorold, Ont.
16216	" 4..	Susan Miller.....	Privilege to lay 1½-inch pipe from head of Lock 9, and draw water.
16238	" 2..	Hamilton Cataract Power, Light and Traction Co., Ltd.	Two parcels of land in Welland, Ont., and privilege to erect thereon transmission towers, to carry wires over canal.
16239	" 23	Dept. of Militia and Defence....	Pt. Lots 14 and 15, Township of Dunn, Co. of Haldimand, Ont.

Department of Railways and Canals,
Ottawa, August 20, 1906.

SESSIONAL PAPER No. 20

Railways and Canals during the Fiscal Year ended June 30, 1906—*Concluded.*

CANAL.

Area.	Amount of Water Power.	Term.	Commencement of term.	Terms of Payment.		
				Annual Rental.	Due each year.	First instalment due.
				$ cts.		
0·519 acre	1,100 h. p..	21 years.....	Jan. 1, 1906	Land, $40; water, $2 per h.p.	Half-yearly.	Jan. 1, '06
CANAL.						
.....	.....	21 years.....	Jan. 1, 1904	300 00	July 1....	July 1, '06
4 acres.....	.....	During pleasure....	Feb. 1, 1906	1 00	Feb. 1....	Feb. 1, '06
3½ "	.....	"	June 1, 1906	7 00	June 1....	June 1, '06
CANAL.						
1·3 acre	.....	During pleasure....	Sept. 1, 1905	10 00	Sept. 1....	Sept. 1, '05
0·218 "	.....	" ...	Jan. 1, 1906	25 00	Jan. 1....	Jan. 1, '06
8 acres.. ...	.....	20 years.	April 1, 1905	100 00	Apr. 1....	Apr. 1, '05
CANAL.						
....	.....	During pleasure....	June 1, 1905	5 00	June 1....	June 1, '05
.....	.....	"	July 1, 1905	5 00	July 1....	July 1, 05
....	50 cu. ft. per sec.	19 yrs. and 4 months renewable.	Sept. 1, 1904	500 00	Half-yearly.	Jan. 1, '05
2·05 acres.....	.....	During pleasure....	Jan. 1, 1906	25 00	Jan. 1 ...	" 1, '06
.. ..	.....	"	Sept. 1, 1905	5 00	Sept. 1....	Sept. 1, '05
.. ..	300 cu. ft. per sec.	18 years	Jan. 1, 1906	9,000 00	Half-yearly.	Jan. 1, '06
....	....	10 years renewable..	April 1, 1906	100 00	Apr. 1...	Apr. 1, '06
... .	....	10 years.	May 1, 1906	25 00	May 1 ...	May 1, '06
.....	....	During pleasure ..	June 1, 1906	10 00	June 1...	June 1, '06
.....	....	10 years renewable,.	May 1, 1906	100 00	May 1....	May 1, '06
....	....	During pleasure....	June 1, 1906	10 00	June 1....	June 1, '06

HAZEN HANSARD,
Law Clerk.

No. 4.

PROPERTY CONVEYED to the Department of Railways and Canals and Letters Patent granted during the Fiscal Year ended June, 1906.

CANADIAN PACIFIC RAILWAY.

No. of Deed.	Date of Signature.	Grantor.	Lot.	District.	County.	Area.	Amount.
	1906.						$ cts.
16243	Mar. 5..	His Majesty the King.....	Land for right of way, &c.	Nipissing, Algoma and Thunder Bay	.....	.. . .	

INTERCOLONIAL RAILWAY.

	1904.						
*15972	Oct. 13..	Alex. Phillips	Land on W. side of Upper Street	Halifax City....	Halifax, N. S.....	6,245 sq. ft.....	5,326 90
	1905.						
15980	Aug. 26..	His Majesty the King.....	Land at.....	Sussex	Kings, N.B.....	15,487 "	
15981	" 26.	" " "	"	"	"	15,487 " ...	
15982	" 28..	" " "	"	"	"	6,000 "	
15983	" 26.	" " "	"	"	"	17,250 " ...	
15984	" 25..	" " "	"	"	"	6,000 " . .	
15985	" 26..	" " "	"	"	"	15,487 " .. .	
*15988	Jan. 12..	Emma J. Lowerison.....	"	Aulac	Westmoreland, N.B...	0.75 acre	350 00
*15992	May 17..	William Watts..	58, 59, 108 and 109, and pts. 57 and 110 S. Ward.....	Drummondville.....	Drummondville, Que..	41,976 } 18,001 } sq. ft...	2,000 00
15997	July 7..	Rachel Primrose, *et al*....	Land and land covered with water.....	Pictou Harbour	Pictou, N.S..... ..	7·45 acres..	8,000 00
	1904.						
*15998	Aug. 26..	Louis St. Laurent.	Pt. 32, Range 1st.....	Humqui Tp..... ..	Rimouski, Que.....	3,190 sq. ft....	200 00
*15999	" 26..	G. Roy.....	" "	"	"	1,860 "	70 00
*16000	" 26..	A. Lamontagne..	" "	"	"	2,400 " ..	100 00
	1905.						
16025	July 18..	W. A. Hendry	Land at.....	Springhill Jct..	Cumberland, N.S.	4·6 acres.....	400 00
16026	Sept. 18..	John Ware, *et ux*.....	Land on S. side of Gray's Lane... .. .	Halifax City..	Halifax, N.S.....	1,633 sq. ft.....	1,000 00

16033	"	16	Thos. Ritchie, *et ux*	"	"	"	1,349	"		900	00
16034	"	21	Geo Ritchie and Jno. Menger	Land N. side of Gerrish Street	"	"	2,200	"		1,800	00
16035	"	20	Thos. and Geo. Ritchie	Land W. side of Upper Water Street	"	"	1,748	"		2,400	00
16036	"	27	G. P. Archibald	" " "	"	"	4,200	"		2,800	00
16037	"	23	James A. Artz	" " "	"	"	3,600	"		1,200	00
16038	"	22	Thos. Spry, *et ux*	" " "	"	"	6,230	"		1,600	00
16039	"	25	A. I. Rockwell	" " "	"	"	1,526½	"		1,200	00
16048	Oct.	21	C. Kee, *et al*	Of privilege to lay pipes through Grantor's land at Hampton, N.B.						50	00
16049	Aug.	31	Levi Hart	Land on E. side of	Campbell Road	Halifax, N.S.				18	00
16052	Oct.	2	C. T. West	Land on W. side of Upper Water Street	Halifax City	"	5,148	sq. ft.		1,000	00
16053	Sept.	28	C. Smith	Land on S. side of Gerrish Street	"	"	3,075	"		1,800	00
16054	"	28	D. McMullin	Land on N. side of Gray's Lane	"	"	2,560	"		1,000	00
16055	Oct.	6	A. B. and G. E. Boak	Land on W. side of Upper Water Street	"	"	4,140	"		1,200	00
16067	Nov.	22	E. Beauregard	Pt. 51, Range of St. Henri	Parish of St. Liboire	Bagot, Que	3,590	"		50	00
16068	"	22	Mrs. O. Allard	Pt. 420. Range of St. George	" "	"	3,500	"		45	00
16077	Oct.	28	Donald McKay	Land at	McKay's Siding	Colchester, N.S	3,400	"		50	00
16083	Sept.	28	W. K. Thomson, *et al*	Land on W. side of Upper Water Street	Halifax City	Halifax, N.S.	6,725	"		1,100	00
16092	Nov.	24	H. M. Evans, *et al*	Land on S. side of Gray's Lane	"	"	1,526½	"		1,200	00
16133	Dec.	18	Chas. W. Hewson, *et al*	Land at	Fort Lawrence	Cumberland, N.S.	1·17	acre		263	80
	1906.										
16138	Jan.	9	David Andrews, *et ux*	Land on W. side of Upper Water Street	Halifax City	Halifax, N.S.	4,056	sq. ft.		1,100	00
16139	"	26	James Artz, *et al*	Land on N. side of Artz Lane	"	"	9,916	"		3,800	00
16140	"	26	" "	" "	"	"	2,664	"		2,100	00
	1904.										
*16144	Nov.	4	Christy Smith	Land at	Sydney	Cape Breton, N.S.	11,385	"		4,500	00
	1906.						1,500	"		1,600	00
16146	Feb.	26	J. G. Thomson, *et al*	Land on S. side of Gerrish Street	Halifax City	Halifax, N.S.	7,261	"		3,600	00
	1905.										
16145	Dec.	5	John W. Austin, *et ux*	Land on W. side of Upper Water Street	"	"					
16147	Nov.	17	W. H. L. Cogswell, *et ux*	" "	"	"	2,244	"		1,300	00
16148	"	3	Mary A. Plumkett	Land on S. side of Artz Street	"	"	4,600	"		3,600	00
16150	"	15	Wm. H. Archibald, Trustee	Land at	N. Sydney	Cape Breton, N.S.	38,653	"		2,250	00
16176	"	10	Wm. Cunard, *et ux*	Land at	"	"	21,974	"		1,260	00
	1906.										
16178	Mar.	6	John Barry, *et al*	Land on W. side of Upper Water Street	Halifax City	Halifax, N.S.	5,304	"		1,600	00
	1905.										
16179	Nov.	24	Fred H. Turner, *et al*	" " "	"	"	3,650	"		2,200	00
16180	Dec.	7	John O'Sullivan	" " "	"	"	8,424	"		4,900	00
	1906.										
16182	Jan.	25	Peter Mason, *et ux*	" " "	"	"	2,730	"		2,000	00
16183	Feb.	16	Jairus Hart	" " "	"	"	5,040	"		1,000	00
	1905.										
16184	Dec.	27	Alfred Short	" " "	"	"	4,800	"		960	00
16186	Oct.	31	James Roue, *et al*	Land at	"	"	2,808	"		550	00
16187	"	27	James Reeves, *et ux*	Land on W. side of Upper Water Street	"	"	7,000	"		1,700	00

* Too late for last year's Report.

No. 4.—Property Conveyed to the Department of Railways and Canals and Letters Patent granted during the Fiscal Year ended June 30, 1906—*Concluded*

INTERCOLONIAL RAILWAY—*Continued*.

No. of Deed.	Date of Signature.	Grantor.	Lot.	District.	County.	Area.	Amount.
	1905.						$ cts.
16190	Dec. 26.	Joseph Blanchet	Pt. 550	St. Ignace Parish	Montmagny, Que.	16,340 sq. ft.	37 70
	1906.						
16194	Feb. 20.	George Penny *et al*	Land on W. side of Upper Water Street	Halifax City	Halifax, N.S.	35,676 "	21,000 00
16206	Jan. 30.	Robt. W. Hewson *et ux.*	Land at	Moncton	Westmoreland, N.B.	1·38 acre	10,490 00
16207	March 13.	M. Inglis *et al*	Land on S. side of Gerrish Street	Halifax City	Halifax, N.S.	3,000 sq. ft	2,200 00
16208	" 30.	John K. Hubley *et ux.*	Land on W. side of Upper Water Street	"	"	4,800 "	3,500 00
16231	April 14.	A. Cannon *et ux.*	Land at	Fort Lawrence	Cumberland, N.S.	1·01 acre	141 40
16232	May 7.	Thos. C. Fraser *et al*	Land at	Lorne	Pictou, N.S.	0·384 "	50 00
16236	March 9.	Catherine Kennedy *et al*	Land on N. side of Gerrish Street	Halifax City	Halifax, N.S.	3,306 sq. ft	1,400 00
16242	Feb. 12.	Frank S. West *et al*	Land on N. side of Gray's Lane	"	"	5,200 "	2,100 00
16250	March 30.	A. B. Mitchell *et ux.*	Land on S. side of Gerrish Street	"	"	1,500 "	1,100 00
16255	May 4.	J. H. Goodwin *et al*	Land at	Fort Lawrence	Cumberland, N.S.	1·65 acre	500 20
	1905.						
16263	Nov. 1.	Peter Mason *et ux.*	Land on W. side of Upper Water Street	Halifax City	Halifax, N.S.	1,656 sq. ft	1,200 00
	1906.						
16264	March 27.	C. H. Wallace *et al*	Land on N. side of Gerrish Street	"	"	1,653 "	1,600 00
16265	Feb. 21.	John Y. Payzant	Land on W. side of Upper Water Street	"	"	4,100½ "	2,000 00
16266	May 22.	J. B. McManus, Ltd	Land at	Memramcook	Westmoreland, N.B.	7,500 "	1 00
16276	" 1.	A. F. Chamberlain *et ux.*	Land at	Campbellton	Restigouche, N.B.	0·82 acre	200 00

CORNWALL CANAL.

	1906.						
16205	May 28.	Mary L. H. Waldorf	Pt. W½ 7, 1st con	Osnabruck T'p	Stormont, Ont	0·42 acre	26 31

FARRAN'S POINT CANAL.

	1905.						
15941	July 1.	Geo. Kerr *et ux.*	Pts. 16, 17 and 18, Village of Farran's Pt.	Osnabruck T'p	Stormont, Ont	0·26 acre.	6,204 00

GALOPS CANAL.

16062	1905. Nov. 18..	Mary A. Sellack	Pt. E½ of W½ No. 11, 1st con....	Edwardsburgh T'p.....	Grenville, Ont..	1·28 acre.	430 10

TRENT CANAL.

16027	1905. Oct. 31.	Hamilton Provident and Loan Society.	Pt. E½ No. 2, con. "A".	Mara T'p	Ontario, Ont..... ..	0·29 acre...	25 00
16082	Nov. 21..	Robert Lunan.	Pt. 19, con. 4, N. of Portage Road.....	Eldon T'p.....	Victoria, Ont.	2 acres.....	130 00
16126	1906. Jan. 31..	James Jewell *et ux*.....	Pt. 20, con. 4, N. of Portage Road.....	"	"	2 "	130 00
16193	April 27..	Joseph Cowie.....	Pt. 1, con. "B"	Mara T'p.....	Ontario, Ont	0·36 acre.	36 00
16270	Jan. 20..	Co. of Peterborough and Township of Otonabee.	Bensford and Wallace Bridges.....	Otonabee T'p..... . .	Peterborough, Ont....	....	1 00
16271	" 20..	Co. of Peterborough, T'p of Ennismore & T'p of Smith.	Chemong Bridge.....	Ennismore T'p....	"	.....	1 00
16272	" 20 .	Co. of Peterborough, T'p of Ennismore & T'p of Harvey.	Gannons Narrows Bridge.....	Harvey T'p.....	"	....	1 00
16273	March 27..	Co. of Peterborough, City of Peterborough and T'p of Monaghan.	Locks Bridge..	N. Monaghan T'p.....	"	....	1 00

WELLAND CANAL.

15963	1905. Aug. 3..	A. E. Grass *et al*.....	Pt. 15, con. 5...	Grantham T'p.....	Lincoln, Ont...	0·41 acre.	200 00
16022	Nov. 2..	J. H. Burgar *et al*..... ...	Pt. 238.....	Thorold T'p	Welland, Ont....	0·01 "	1,500 00

Department of Railways and Canals,
Ottawa, August 20, 1906.

HAZEN HANSARD,
Law Clerk.

No. 5.

DAMAGES released to the Department of Railways and Canals during the Fiscal Year ended June 30, 1906.

INTERCOLONIAL RAILWAY.

No. of Release.	Date of Signature.	Grantor.	Description.	Amount.
	1906.			$ cts.
16094	Jan. 18	P. F. Lacroix	Damages consequent upon closing of farm crossing at St. Michel Station, Co. of Bellechasse, Que.	75 00
16175	Feb. 15	A. McKinnon	Damages consequent upon closing of farm crossing at North Sydney Junction, N.S.	200 00
16177	Mar. 21	John A. McDonald	Damages caused by water to goods and buildings at Iona, N.S.	1,200 00
16252	June 16	John K. Hubley	From all claims and demands incidental to purchase of land in Halifax, N.S.	500 00
16253	" 15	Mary Voltz	From all claims and demands incidental to purchase of land in Halifax, N.S.	200 00

TRENT CANAL.

	1905.			
16023	Nov. 9	The Geo. Mathews Co., Ltd.	Damages to goods consequent upon flooding of cellars.	600 00
	1906.			
16131	Mar. 8	Richard Cosgriff	Damages to Lot S½ 11, 8th Concession, Township of Ennismore, County of Peterborough, Ont., consequent upon the raising of Buckhorn Dam.	12 00

WELLAND CANAL.

	1905.			
15948	Aug. 16	Frank P. Goring	Damages for injuries sustained	725 00
15952	" 18	Robert Colgan	" " &c	32 50
16060	Dec. 21	F. Boyer	" " at Port Colborne	1,600 00

DEPARTMENT OF RAILWAYS AND CANALS.
OTTAWA, August 20, 1906.

HAZEN HANSARD,
Law Clerk.

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DEPARTMENT OF RAILWAYS AND CANALS

CANAL STATISTICS

FOR THE

SEASON OF NAVIGATION

1905

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
PRINTED BY S. E. DAWSON, PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1906

[No. 20*a*—1906.]

CANAL STATISTICS

FOR

SEASON OF NAVIGATION, 1905.

For the season of navigation of 1904 and 1905, all the canals were declared free, consequently no tolls were collected for the present year. The statistics as compiled show the Revenue as it would appear if tolls had been collected.

Both the revenue and tonnage show a large increase on all the canals for the present year, as per statements herewith presented.

REVENUE.

The total revenue, exclusive of hydraulic rents for two years, is as follows :—

For 1904	$ 291,676 97
For 1905	356,405 68

By comparing the statistics of 1904 with 1905, it will be seen that the gross revenue has increased $64,728.71.

The increases and decreases are as follows :—

	Increase.	Decrease.
On the Welland Canal	$ 39,890 82	
" St. Lawrence Canals	16,227 12	
" Chambly Canal	931 01	
" Ottawa Canals	6,744 31	
" Rideau Canals	748 19	
" St. Peter's Canal	146 21	
" Trent Valley Canals		67 02
" Murray Canal	108 07	
" Sault Ste. Marie Canal		
Total	$ 64,795 73	67 02
Total increase		$ 64,728 71

STATEMENT of the Revenue, together with the increases and decreases of all the Canals for the seasons of Navigation from 1891 to 1905, inclusive.

1891	$ 350,351 97	$ 2,292 46	
1892	358,711 04	8,359 07	
1893	348,012 00		$ 10,699 04
1894	307,824 67		40,187 33
1895	283,211 41		24,613 26
1896	350,061 03	66,849 62	
1897	346,758 87		3,302 16
1898	341,679 23		5,079 64
1899	291,652 37		50,026 86
1900	269,116 25		22,536 12
1901	250,949 57		18,166 68
1902	227,577 93		23,371 64
1903	333,086 86	105,518 93	
1904	291,676 97		41,419 89
1905	356,405 68	64,728 71	

GRAIN PASSED DOWN WELLAND.

The quantity of barley, corn, oats, pease, rye and wheat passed down the Welland Canal, from ports west of Port Colborne for a period of twenty four years is as follows :—

	Quantity passed down to Montreal.	Quantity on which full tolls were paid. (Free for 1904.)	
		To ports in Ontario.	Quantity from U.S. Ports to U.S. Ports.
	Tons.	Tons.	Tons.
1882	180,694		63,881
1883	186,814	10,650	121,876
1884	142,194	12,153	104,537
1885	96,569	11,909	117,346
1886	203,940	9,881	151,551
1887	185,034	11,838	134,868
1888	160,358	25,599	169,664
1889	267,769	19,075	213,766
1890	288,513	16,899	245,932
1891	295,509	6,805	202,710
1892	261,954	8,942	201,540
1893	501,806	25,555	222,958
1894	273,651	16,699	203,979
1895	231,491	32,096	133,823
1896	461,049	73,386	160,372
1897	560,254 *	53,257	157,756
1898	519,532	31,279	144,612
1899	332,746	40,197	68,011
1900	244,661	17,525	84,589
1901	151,566	13,732	83,370
1902	208,215	22,787	81,164
1903	351,936	29,062	111,828
1904	198,246	23,711	102,523
1905	341,431	42,061	129,270

*Of the quantity of grain passed down to Montreal there were transhipped at Ogdensburg, in 1891, 17,817 tons ; in 1892, 4,341 tons ; in 1893, 71,445 tons ; in 1894, 23,030 tons ; in 1895, 18,987 tons ; in 1896, 77,355 tons ; in 1897, 89,659 tons ; in 1898, 40,257 tons ; in 1899, 48,828 tons ; in 1900, 38,403 tons ; in 1901, 17,387 tons ; in 1902, 34,060 tons ; in 1903, 40,641 tons ; none in 1904 and none in 1905.

The tolls on grain for passage through the Welland Canal prior to 1884 were 20 cents a ton ; since that date, however, reductions have been made by Orders in Council from year to year as follows :—Upon the urgent request of forwarders and others interested in the grain trade, a reduction was made of one-half the usual rate of tolls on grain passing down the Welland Canal and the St. Lawrence Canals to Montreal ; and in 1885 tolls were reduced to 2 cents a ton, and thereafter from year to year, including 1891.

In 1892 the tolls were reduced to 2 cents a ton on grain passed down the Welland and St. Lawrence Canals and exported, and in such cases only.

In 1893 by Order in Council of February 13, the tolls were reduced to 10 cents a ton on grain passing eastward through the Welland Canal, irrespective of its destination, and the same rate of tolls for 1894 were allowed by O.C., April 16, 1894.

For the year 1895 (O.C., April 1, 1895), the same rate of tolls was allowed as was granted for the year 1894.

For the year 1896 (O.C., April 23, 1896), the same rate of tolls was allowed as was granted for the year 1895.

For the year 1897 (O.C., April 17, 1897), the same rate of tolls was allowed as was granted for the year 1896.

For the year 1898 (O.C., June 1, 1898), the same rate of tolls was allowed as was granted for the year 1897.

For the year 1899 (O.C., April 10, 1899), the same rate of tolls was allowed as was granted for the year 1898.

For the year 1900 (O.C., February 20, 1900), the same rate of tolls was allowed as was granted for the year 1899.

For the year 1901 (O.C., May 3, 1901), the same rate of tolls was allowed as was granted for the year 1900.

For the year 1902 (O.C., April 1, 1902), the same rate of tolls was allowed as was granted for the year 1901.

For the year 1903 the canals were declared free of tolls. O.C., April 27, 1903.

For the year 1904 the canals were declared free of tolls. O.C., April 27, 1903.

For the year 1905 the canals were declared free of tolls. O.C., April 27, 1903.

The rate through the St. Lawrence Canals only was 10 cents a ton.

It may be remarked that goods having paid full tolls on the Welland Canal are allowed to pass down the St. Lawrence Canals to Montreal free from payment of any further tolls.

During the last decade the quantity of agricultural products as above, passed down the Welland and St. Lawrence Canals to Montreal, has decreased from 461,049 tons in 1896 to 341,431 tons in 1905 and the quantity passed down the Welland Canal from United States ports to United States, has decreased from 160,372 to 129,270 tons for the same years.

The quantity of barley, buckwheat, corn, oats, pease, rye and wheat, arrived at Montreal via Grand Trunk and Canadian Pacific Railways for a period of 13 years, is reported as follows :—

	Tons.
For 1893	147,610
1894	60,666
1895	51,114
1896	153,717
1897	228,611
1898	293,391
1899	209,170
1900	229,624
1901	227,700
1902	263,861
1903	253,959
1904	154,625
1905	148,377

The quantity of the same articles passed down the whole length of the St. Lawrence Canals to Montreal for the same period was :—

	Tons.
For 1893	532,084
1894	288,015
1895	247,550
1896	495,898
1897	604,200
1898	575,097
1899	372,291
1900	295,928
1901	203,316
1902	242,225
1903	400,057
1904	220,076
1905	375,630

Comparative shipments of grain by the St. Lawrence route, and rail and water via the State of New York, are as follows :—

QUANTITY OF GRAIN TO SEA-BOARD BY COMPETING ROUTES.

The quantity of grain and peas passed down the whole length of the St. Lawrence Canal to Montreal, is as follows :—

	Tons.
For 1904	220,076
1905	375,630
Showing an increase of	155,554

The quantity of grain and pease carried to Montreal via Canadian Pacific and Grand Trunk Railways, is reported as follows :—

	Tons.
For 1904	154,625
1905	148,377
Showing a decrease of	6,248

The quantity of grain arrived at the tide-water by New York Canals, is reported as follows :—

	Tons.
For 1904	226,867
1905	216,237
Showing a decrease of	10,630

The quantity of grain carried to tide-water by the New York railways, is reported as follows :—

	Tons.
For 1904	3,048,573
1905	3,164,540
Showing an increase of	115,967

The increases and decreases for 1905 as compared with 1904 on the several routes, competing for the carrying trade to the sea-board, are as follows :—

—	Increases.	Decrease.	Increase.	Decrease.
	Tons.	Tons.	Per cent.	Per cent.
On the St. Lawrence	155,554		77 17	
" Canadian Pacific and Grand Trunk Railways		6,248		4 11
" New York Canals		10,630		4 25
" " Railways	115,967		3 81	

By reference to Appendix U, it will be seen that the quantity of freight from ports west of Port Colborne to the United States ports, Oswego, Ogdensburg, &c., has

decreased from 373,070 tons in 1894 to 234,017 tons in 1905 and the quantity to Ontario ports, between Port Dalhousie and Cornwall, and an increase from 80,681 tons in 1894 to 165,286 tons in 1905. The quantity passed down to Montreal shows an increase from 292,191 tons in 1894 to 448,704 tons in 1905.

TRANSHIPMENT OF GRAIN.

The quantity of grain passed down the Welland Canal in Canadian and United States vessels to Kingston and Prescott for fifteen years, is as follows:—

In Canadian vessels there were in—

		Tons.
1891,	209 Cargoes, with an aggregate quantity of	190,664
1892,	158 " "	159,018
1893,	146 " "	148,962
1894,	125 " "	159,145
1895,	123 " "	136,617
1896,	196 " "	227,912
1897,	180 " "	229,265
1898,	166 " "	224,021
1899,	162 " "	221,306
1900,	325 " "	183,200
1901,	112 " "	132,558
1902,	131 " "	175,514
1903,	170 " "	218,840
1904,	115 " "	174,121
1905,	167 " "	239,418

In the United States vessels there were in—

		Tons.
1890,	35 Cargoes with an aggregate quantity of	35,560
1891,	77 " "	90,153
1892,	89 " "	109,812
1893,	257 " "	328,269
1894,	84 " "	106,236
1895,	56 " "	73,987
1896,	158 " "	217,978
1897,	197 " "	285,847
1898,	339 " "	464,852
1899,	167 " "	205,571
1900,	259 " "	163,575
1901,	135 " "	123,229
1902,	135 " "	136,652
1903,	219 " "	273,986
1904,	118 " "	150,359
1905,	235 " "	273,344

Ninety-six Canadian and 19 American vessels took cargoes of 180,206 tons through to Montreal intact in 1905; 56 Canadian and 16 American of 116,095 tons in 1904; 56 Canadian and 18 American of 99,582 tons in 1903; 19 Canadian and 17 American of 34,804 tons in 1902; 23 Canadian and 2 American of 17,303 tons in 1901, 15 of 7,924 tons in 1900, 2 of 558 tons in 1899, 7 of 2,426 in 1898, 7 of 2,324 in 1897, 3 of 1,176 in 1896, 4 of 1,344 tons in 1895, 2 cargoes of 810 tons in 1894, none in 1893, 2 in 1892 of 924 tons, and 3 in 1891 of 1,441 tons. Three vessels lightened a portion of their cargoes in 1901, 9 in 1900, 11 in 1899, 25 in 1898, 11 in 1897, 16 in 1896, 6 in 1895, 19 in 1894, 34 in 1893, 25 in 1892, and 44 in 1891; 222 vessels discharged the whole of their cargoes at Kingston in 1901, 540 in 1900, 316 in 1899, 473 in 1898, 359

in 1897, 335 in 1896, 169 in 1895, 188 in 1894, 369 in 1893, 220 in 1892, and 293 in 1891.

The quantity of grain transhipped at Port Colborne in 1905 and the four previous years is given below.

The total number of grain-laden vessels lightened at this port in 1905 was 50, against 57 the previous year.

The quantity of grain lightened was as follows:—

Articles.	1900.	1901.	1902.	1903.	1904.	1905.
	Bush.	Bush.	Bush.	Bush.	Bush.	Bush.
Wheat	272,609	393,490	577,697	670,302	175,117	679,840
Corn	448,256	556,911	529,651	834,718	408,976	104,027
Rye	Nil.	Nil.	Nil.	13,768	.....	.....
Oats	Nil.	76,236	5,824	2,765	15,353	.....
Barley	Nil.	27,115	Nil.	13,242	9,686	.....

WELLAND CANAL.

The total quantity of freight passed on the Welland Canal during the season of 1905 was 1,092,050 tons; of this quantity 16,082 tons were way or local freight.

There were 859,991 tons of freight passed eastwards, and 232,059 passed westwards.

East and west bound Through Freight.

The total quantity of through freight passed through the whole length of the Welland Canal during the season of 1905 was 1,075,968 tons.

Of this quantity 848,007 tons were east bound and 227,961 west bound freight.

Of the east bound through freight, Canadian vessels carried 369,866 tons and United States vessels carried 478,141 tons; and of the west bound through freight Canadian vessels carried 85,251 tons and United States vessels carried 142,710 tons, or a total of 455,117 tons for Canadian and 620,851 tons for American vessels.

ST. LAWRENCE CANALS.

The total quantity of freight passed through these canals during 1905 was 1,752,855 tons; of this quantity 1,266,683 tons passed eastward and 486,172 passed westward.

East and west bound Through Freight.

The total quantity of through freight was 1,080,278 tons; of this quantity 827,720 tons were east bound and 252,558 tons were west bound.

Way Freight.

Of the total quantity of (way) or local freight 438,963 tons were east bound and 233,614 tons west bound freight.

THROUGH TRAFFIC BETWEEN MONTREAL AND PORTS ON LAKE ERIE, MICHIGAN, ETC.

The total quantity of through freights passed eastward and westward through the Welland and St. Lawrence Canals, from Lake Erie to Montreal during fifteen years, is as follows :—

	Eastward to Montreal. Tons	Westward from Montreal. Tons.
1891	309,953	14,060
1892	263,144	9,452
1893	508,016	16,545
1894	292,191	9,439
1895	266,659	10,555
1896	480,077	10,050
1897	584,246	4,542
1898	538,108	4,436
1899	354,933	5,991
1900	288,251	6,217
1901	184,420	13,714
1902	250,475	25,289
1903	390,786	100,699
1904	278,328	71,512
1905	448,704	72,482

THROUGH FREIGHT FROM UNITED STATES PORTS TO UNITED STATES PORTS.

The total quantity of through freight passed eastward and westward through the Welland Canal, from United States ports to United States ports. for a period of fifteen years, is as follows :—

	Eastward. Tons.	Westward. Tons.	Total. Tons.
1891	306,257	247,543	553,800
1892	300,733	240,332	541,065
1893	384,559	247,108	631,667
1894	361,319	230,948	592,267
1895	255,259	214,520	469,779
1896	385,695	267,518	653,213
1897	353,863	210,831	564,694
1898	277,023	210,516	487,539
1899	225,491	135,038	360,529
1900	218,969	99,560	318,529
1901	190,476	83,543	274,019
1902	224,110	44,919	269,029
1903	221,074	149,151	370,225
1904	165,337	87,144	252,481
1905	190,547	111,749	302,298

The total quantity of freight passed through the Welland Canal from United States ports to United States ports shows an increase of 49,815 tons, as compared with the previous year; and a decrease of 251,504 tons as compared with 1891.

The following statement shows the aggregate number of vessels, and the total quantity of freight passed through the Welland Canal, and the quantity passed between United States ports during the years 1867 to 1905 inclusive:—

Fiscal Year.	Aggregate number of Vessels.	Total quantity transported on the Welland Canal.	Quantity passed from United States ports to United States ports.
	Number.	Tons.	Tons.
1867	5,405	933,260	458,386
1868	6,157	1,161,821	641,711
1869	6,069	1,231,903	688,700
1870	7,356	1,311,956	747,567
1871	7,729	1,478,122	772,756
Season of navigation.			
1872	6,063	1,333,104	606,627
1873	6,425	1,506,484	656,208
1874	5,814	1,389,173	748,557
1875	4,242	1,038,050	477,809
1876	4,789	1,099,810	488,815
1877	5,129	1,175,398	493,841
1878	4,429	968,758	373,738
1879	3,960	865,664	284,043
1880	4,104	819,934	179,605
1881	3,332	686,506	194,173
1882	3,334	790,643	282,806
1883	3,267	1,005,156	432,611
1884	3,138	837,811	407,079
1885	2,738	784,928	384,509
1886	3,589	980,135	464,478
1887	2,785	777,918	340,501
1888	2,647	878,800	434,753
1889	2,975	1,085,273	593,584
1890	2,883	1,016,165	533,957
1891	2,594	975,013	553,800
1892	2,615	955,554	541,065
1893	2,843	1,294,823	631,667
1894	2,412	1,008,221	592,267
1895	2,222	869,595	469,779
1896	2,766	1,279,987	653,213
1897	2,725	1,274,292	564,694
1898	2,384	1,140,077	487,539
1899	2,202	789,770	360,529
1900	2,399	719,360	318,529
1901	1,547	620,209	274,019
1902	1,568	665,387	269,029
1903	1,787	1,002,919	370,225
1904	1,433	811,371	252,481
1905	1,595	1,019,568	302,296

The total quantity of freight passed through the several divisions of the canals during the season of 1905 is as follows :—

—	Farm Stock.	Forest Produce of Wood.	Manufactures.	Merchandise.	Agricultural Products.	Total.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Welland		157,570	79,708	257,467	597,305	1,092,050
St. Lawrence	1,899	247,222	138,118	620,986	744,630	1,752,855
Chambly	243	304,272	9,262	111,401	21,891	447,069
Ottawa	1,529	343,255	375	17,081	9,101	371,341
Rideau	8	27,044	5,080	21,410	6,322	59,864
St. Peters	36	10,159	4,551	53,658	12,673	81,077
Murray	9	2,586	10,085	12,535	4,206	29,421
Trent Valley	292	44,058	76	105	700	45,231
Sault Ste. Marie	77	96,832	138,132	4,115,740	1,122,625	5,473,406

The total quantity of freight moved on the Welland Canal was 1,092,050 tons, of which 597,305 tons were agricultural products.

On the St. Lawrence Canals the total quantity of freight moved was 1,752,855 tons, of which 744,630 were agricultural products, and 620,986 tons were merchandise.

On the Ottawa Canals the total quantity of freight moved was 371,341 tons ; of this quantity 96,832 tons were the produce of the forest.

STATISTICAL COMPARISON OF VARIOUS UNITED STATES ROUTES.

The statistical comparisons heretofore given in respect to the quantities of the principal articles carried through the Welland Canal, and those carried over routes in the United States, in competition with that work, have been continued to date.

By reference to statement H, as to the quantity of vegetable food carried to tidewater, it will be observed that the quantity carried by the New York Canals was 346,200 tons in 1905, 361,333 tons in 1904, 512,601 tons in 1903, 489,053 in 1902, 557,099 in 1901, 472,857 in 1900, 577,486 in 1899, 653,027 in 1898, 744,575 in 1897, 957,182 in 1896, 606,505 in 1895, 1,400,129 in 1894, 1,450,116 in 1893, 937,999 in 1892, and 1,092,385 in 1891.

The quantities of vegetable food carried by the New York Central, Erie and New York, West Shore and Buffalo Railways being :—

	Tons.		Tons.
In 1905	4,475,888	In 1887	*3,847,766
1904	4,632,082	1886	*3,802,262
1903	5,548,603	1885	4,105,594
1902	6,532,263	1884	3,639,805
1901	8,334,001	1883	4,422,461
1900	6,053,005	1882	3,885,557
1899	6,211,827	1880	4,732,385
1898	7,060,542	1869	1,087,809
1897	5,673,638		
1896	5,183,540		
1895	*3,798,574		
1894	4,281,056		
1893	5,107,426		
1892	5,913,013		
1891	5,565,381		
1890	4,336,199		
1889	3,654,984		
1888	3,197,734		

* Flour and grain only.

The following figures are an abstract of the quantities of vegetable food carried to tide-water by the canals and railways of the State of New York during thirty-seven years :—

—	Canals.	Railways.	Total.	Proportions by Canals.
	Tons.	Tons.	Tons.	Tons.
1869	1,302,613	1,087,809	2,390,342	·545
1870	1,295,010	1,766,457	3,061,467	·423
1871	1,850,198	2,205,589	4,055,787	·456
1872	1,674,320	1,870,614	3,544,934	·472
1873	1,745,171	2,036,992	3,782,163	·461
1874	1,767,598	2,791,517	4,559,115	·387
1875	1,305,550	2,343,241	3,648,791	·357
1876	1,064,293	2,875,803	3,940,096	·270
1877	1,498,984	2,493,683	3,992,667	·375
1878	1,912,734	3,695,764	5,608,498	·341
1879	1,833,399	4,353,617	6,187,016	·296
1880	2,371,090	4,732,385	7,103,475	·333
1881	1,116,561	4,983,722	6,100,283	·183
1882	1,118,776	3,885,557	5,004,333	·223
1883	1,379,000	4,422,461	5,801,461	·237
1884	1,236,986	3,639,805	4,876,791	·253
1885	1,063,310	4,105,594	5,168,904	·205
1886	1,489,886	3,802,262	5,292,148	·281
1887	1,539,403	3,847,766	5,387,169	·285
1888	1,166,958	3,197,734	4,364,692	·267
1889	1,296,896	3,654,984	4,951,880	·262
1890	1,167,901	4,336,199	5,504,100	·212
1891	1,092,355	3,565,381	4,657,736	·234
1892	937,999	5,913,013	6,851,012	·137
1893	1,452,563	5,107,426	6,599,989	·284
1894	1,400,129	4,281,056	5,681,185	·327
1895	602,505	3,798,574	4,401,079	·159
1896	957,182	5,183,540	6,140,722	156
1897	744,575	5,673,638	6,418,213	·116
1898	653,027	7,060,542	7,713,569	·085
1899	577,486	6,211,827	6,789,313	·086
1900	472,857	6,053,005	6,525,862	·073
1901	557,099	6,334,001	6,891,100	·081
1902	489,053	6,532,263	7,021,316	·069
1903	512,601	5,548,603	6,061,204	·081
1904	361,333	4,632,082	4,993,415	·073
1905	346,200	4,475,888	4,822,088	·072

SESSIONAL PAPER No. 20a

COMPARATIVE STATEMENT OF TRAFFIC BY RAILWAYS AND CANALS VIA THE STATE OF NEW YORK.

On reference to the returns made by the railways to the state authorities of New York, and to the canal statistics submitted to the state legislature, I find that of the total tonnage of freight carried by the canals and railways, the state canals carried :—

	Per cent.		Per cent.
In 1859	68·9	In 1887	16·3
1869	47·0	1888	18·8
1870	38·9	1889	15·1
1871	38·9	1890	13·9
1872	40·1	1891	13·4
1873	34·9	1892	9·8
1874	31·7	1893	10·1
1875	28·4	1894	10·2
1876	24·6	1895	9·7
1877	28·3	1896	8·5
1878	27·1	1897	8·3
1879	23·7	1898	6·9
1880	25·1	1899	7·2
1881	18·5	1900	5·2
1882	19·0	1901	5·1
1883	18·7	1902	5·5
1884	19·0	1903	5·6
1885	17·1	1904	4·6
1886	16·9	1905	4·5

The quantity of freight carried by the canals and railways was more in 1905 by 5,242,646 tons than the quantity carried in 1904, and an increase of 61,299,967 tons over 1869.

The quantities carried were as follows:—

	Total Tonnage.	Proportion by canals.
In 1859	5,485,076	·6890
1869	12,453,174	·4705
1870	15,148,274	·3895
1871	15,844,152	·3896
1872	16,631,609	·4012
1873	18,200,208	·3497
1874	18,283,547	·3174
1875	17,101,758	·2841
1876	16,948,627	·2462
1877	17,489,770	·2833
1878	19,017,301	·2719
1879	22,590,766	·2373
1880	25,706,586	·2512
1881	27,857,394	·1859
1882	28,693,054	·1905
1883	30,167,119	·1877
1884	26,293,844	·1905
1885	27,543,948	·1718
1886	31,168,744	·1698
1887	34,029,791	·1632
1888	26,244,610	·1883
1889	35,466,042	·1514

QUANTITY of freight carried—*Concluded.*

	Total Tonnage.	Proportion by canals.
1890	37,624,199	·1394
1891	38,524,179	·1343
1892	43,618,569	·0982
1893	42,953,233	·1009
1894	37,916,412	·1024
1895	36,170,339	·0967
1896	43,756,051	·0849
1897	43,711,512	·0828
1898	49,311,030	·0682
1899	51,702,761	·0713
1900	65,433,541	·0512
1901	65,640,837	·0506
1902	72,075,774	·0549
1903	72,283,508	·0559
1904	68,510,495	·0459
1905	73,753,141	·0458

Average freight rates, grain, Chicago to Buffalo:—(as reported by the Secretary Merchants' Exchange, Buffalo).

Year.	Wheat.	Year.	Wheat.
1881	3·2	1894	1·2
1882	2·5	1895	1·9
1883	3·5	1896	1·7
1884	2·1	1897	1·5
1885	2·0	1898	1·5
1886	3·6	1899	2·5
1887	4·1	1900	1·8
1888	2·7	1901	1·6
1889	2·5	1902	1·5
1890	1·9	1903	1·4
1891	2·5	1904	1·5
1892	2·2	1905	1·7
1893	1·6		
		Average twenty-five years...	2·2

STATEMENT of the Quantity of Grain and Rolling Freight passed down the St. Lawrence Canals from Coteau Landing to Montreal during the Years 1900, 1901, 1902, 1903, 1904 and 1905.

	GRAIN.											
	1900.		1901.		1902.		1903.		1904.		1905.	
	Tons.	Bushels.	Tons.	Bushels.	Tons.	Bushels.	Tons.	Bushels.	Tons.	Bushels.	Tons.	Bushels.
Barley	600	24,967							3,526	139,231	9,505	388,968
Buckwheat	11	460										
Corn	154,815	5,525,845	71,459	2,552,107	11,732	418,791	109,937	3,920,137	61,675	2,202,679	54,272	1,945,689
Oats	16,803	1,005,029	7,831	460,043	3,899	229,262	338	19,865	960	56,541	13,740	8,078,329
Pease	142	4,700										
Rye	3,925	140,434	5,141	193,607	11,552	395,207	3,495	124,769			1,682	56,037
Wheat	126,963	4,215,721	207,403	6,913,434	216,305	7,208,486	175,954	5,837,504	137,338	4,572,896	168,966	5,640,257
Total	303,259	10,917,156	291,834	10,119,191	243,488	8,251,746	289,724	9,902,215	203,499	6,971,347	248,165	16,109,280
	ROLLING FREIGHT.											
Flaxseed	3,779		17,208		11,606		6,347					
Flax and hemp	941											
Flour	8,255		7,290		10,615		9,793		3,798		4,436	
Furniture	1											
Lard and lard oil	1,695				689		18					
Meals	448		588						54		40	
Oil cake			1,255		5,900		9,415		1,359		889	
Meats												
Pork	418		372				464		214		151	
Seeds, all kinds					283		18					
All other vegetables												
Nails												
Oils												
Sugar			28									
Tallow	373								23			
Tin									15			
Merchandise	696		1		5				1		248	
Barrels, empty												
Firewood			1,935		180							
Lumber			459		379							
Woodenware			46								449	
Total	16,606		29,182		29,657		26,055		5,761		6,213	
Grand total	319,865		321,016		273,145		315,779		209,260		254,378	

COMPARATIVE STATEMENT of the Commerce through the U. S. St. Mary's Falls Canals and Canadian Sault Ste. Marie Canal for the Seasons of 1904 and 1905.

		TRAFFIC FOR 1905.		TOTAL TRAFFIC FOR		INCREASE.	DECREASE.
		United States Canal.	Canadian Canal.	Season of 1905.	Season of 1904.	Amount.	Amount.
Vessels	Number.	16,019	5,662	21,681	16,115	5,566	
Lockages	"	9,761	4,031	13,792	10,315	3,477	
Tonnage, registered	Net tons.	31,121,233	5,537,637	36,658,870	24,390,747	12,268,023	
" freight	"	38,802,190	5,473,406	44,275,596	31,548,621	12,726,975	
Passengers	Number.	28,401	26,147	54,548	37,880	16,668	
Coal (hard)	Net tons.	941,763	42,491	984,254	992,354		8,100
" (soft)	"	4,621,032	904,733	5,525,765	5,464,883	60,882	
Flour	Barrels.	4,052,805	1,717,441	5,770,246	4,699,230	1,071,016	
Wheat	Bushels.	42,573,661	25,984,339	68,558,000	50,041,845	18,516,155	
Grain (excluding wheat)	"	33,209,687	6,075,420	39,285,107	31,223,047	8,062,060	
Manufactured and pig iron	Net tons.	181,410	89,016	270,426	236,794	33,632	
Salt	Barrels.	282,188	141,951	424,139	366,223	57,916	
Copper	Net tons.	94,794	11,006	105,800	109,711		3,911
Iron ore	"	28,408,076	2,919,237	31,327,313	19,640,038	11,687,275	
Lumber	Ft. B. M.	933,548,000	21,220,800	954,768,800	913,111,980	41,656,820	
Silver ore	Net tons.	41		41	1,652		1,611
Building stone	"	10,899	12,829	23,728	29,186		5,458
Unclassified freight	"	484,723	330,648	815,371	786,816	28,555	

The United States canal was open to navigation during the season of—

1889	234	days.
1890	228	"
1891	225	"
1892	233	"
1893	219	"
1894	234	"
1895	231	"
1896	232	"
1897	234	"
1898	241	"
1899	231	"
1900	238	"
1901	230	"
1902	256	"
1903	249	"
1904	223	"
1905	245	"

The Canadian canal was open to navigation during the season of—

1895	87	days.
1896	218	"
1897	238	"
1898	243	"
1899	239	"
1900	238	"
1901	246	"
1902	264	"
1903	256	"
1904	241	"
1905	255	"

The average number of vessels passing per day through the two canals for the season of 1905 was eighty-seven.

R. DEVLIN,
Compiler of Canal Statistics.

OTTAWA.

EXPORTS by Lake from Chicago to Canada during the Season of Navigation in 1905.

(From Report of Board of Trade of Chicago.)

Commodities.		Quantity.	Value.
Flour	Tons.	2,044	$ 81,233
Wheat	Bushels.	4,800	4,080
Corn	"	3,784,024	2,143,686
Oats	"	2,390,953	746,946
Barley	"	128,913	52,308
Oil cake	Tons.	800	23,954
Beef	Barrels.	1,085	14,362
Pork	"	3,565	52,105
Lard	Tierces.	1	55
Oil	Barrels.	10	57
Unclassified	Tons.	181	23,244
Total value			$ 3,142,030

GRAIN FREIGHTS BY LAKE—SEASON OF 1905.

The following were the current rates on Wheat and Corn from Chicago to Buffalo, Ogdensburg, Depot Harbour and Montreal; also to New York by Lake and Erie Canal for each week during the season of navigation.

1905.	To Buffalo.		To Ogdensburg.		To Depot Harbour.		To Montreal.		Erie Canal, Buffalo to New York.		*Chicago to New York, Lake and Canal.	
	Wheat, per bush.	Corn, per bush.	Wheat, per bush.	Corn, per bush.	Wheat, per bush.	Corn, per bush.	Wheat, per bush.	Corn, per bush.	Wheat, per bush.	Corn, per bush.	Wheat, per bush.	Corn, per bush.
	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.	cts.
April 15	15	11½	4¼	4								
" 22	15⅝	13⅜	4¼	4		1¼						
" 29	14¼	13⅛	4¼	4		1¼		4¼				
May 6	14⅛	1	4¼	4		1		4¼	4	3⅜	5¼	4⅜
" 13	14¼	1⅛	3⅜	3½		1		4¼	4	3⅜	5¼	4¼
" 20	14⅛	1	3⅜	3½		1			4	3⅜	5¼	4⅜
" 27	14¼	1	3⅜	3½		1		3⅜	4	3⅜	5⅛	4⅜
June 3	14⅛	1	3⅜	3½		1		4¼	3½	3½	4⅝	4¼
" 10	14⅛	1⅛	3⅜	3½		1		4⅜	3½	3½	5	4⅜
" 17	14⅜	1⅛	3⅜	3½		1¼		4¼	3½	3½	4⅜	4¼
" 24	14⅜	1⅛	3½	3½		1¼		4	3½	3½	4⅜	4¼
July 1	14⅜	1⅛	3½	3½		1¼		3½	3½	3½	4½	4⅜
" 8	14⅜	1⅛	3½	3½		1¼		3½	3½	3½	4⅝	4⅜
" 15	14⅜	1⅛	3½	3½		1¼		3½	3½	3½	4⅜	4⅜
" 22	14⅜	1⅛	3½	3½		1⅜		3½	3½	3½	4½	4⅜
" 29	14⅜	1	3½	3½		1		3½	3½	3½	4⅜	4⅜
Aug. 5	14⅜	1⅛	3½	3		1⅛		3½	3½	3½	4⅜	4⅜
" 12	14⅜	1⅛	3½	3		1⅛		4	3½	3½	4⅜	4⅜
" 19	14⅜	1⅛	3½	3		1⅛		4	3½	3½	4⅜	4⅜
" 26	14⅜	1⅛	3½	3		1⅛		4	3½	3½	4⅜	4⅜
Sept. 2	14⅜	1⅛	3½	3		1⅛		4	3½	3½	5	4⅜
" 9	14⅜	1⅛	3½	3¼		1⅛		4	3½	3½	5	4⅜
" 16	14⅜	1⅛	3½	3¼		1⅛		4	3½	3½	5	4⅜
" 23	14⅜	1⅛	3½	3¼		1⅛		4	3½	3½	5⅛	4⅜
" 30	14⅜	1⅛	3½	3¼		1⅛		4¼	3½	3½	5⅛	4⅜
Oct. 7	14⅜	1⅛	3½	3½		1⅛		4¼	4	3½	5⅜	5⅛
" 14	12½	1⅛	3½	3½		2		4⅜	4¼	4	6¼	6¼
" 21	12½	1⅛	4	3½		2		6	4¼	4¼	6⅜	6¼
" 23	12½	1⅛	4	3½		2¼			4⅜	4⅜	7¼	6⅜
Nov. 4	12½	1⅛	4¼	3½		2¼			5	4⅜	7¼	7¼
" 11	12½	1⅛	4¼	4		2¼			5	4⅜	7¼	7¼
" 18	12½	1⅛	4¼	4		3			5	4⅜	7¼	7¼
" 25	3	1⅛	4¼	4		3			5	4⅜	8	7¼
Dec. 2	2½	1⅛	4¼	4								
" 9	2¾	2¼										

* Exclusive of Buffalo charges.

Average Lake Freights.

The following statement shows the average rates of lake freights on wheat and corn between Chicago and Buffalo during each month in the past ten years, the highest and lowest rate on wheat in each year, and the average rates on wheat each year in cents, per bushel :—

(Per Report of Secretary of Merchants' Exchange, Buffalo.)

	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
Grain, bushels.	cts.	cts.	cts.	cts.	cts.	cts.	cts.
1896 Wheat	1·6	1·5	1·2	1·3	1·4	2·0	2·1
1896 Corn	1·4	1·3	1·1	1·2	1·2	1·9	1·9
Highest rate, wheat, 1896, 2⅝c. ; lowest, 1¼c. ; average for the season, 1·7c.							
1897 Wheat	1·3	1·2	1·3	1·5	2·0	1·8	1·5
1897 Corn	1·2	1·1	1·2	1·4	1·8	1·7	1·4
Highest rate, wheat, 1897, 2⅝c. ; lowest, 1c. ; average for the season, 1·5c.							
1898 Wheat	1·3	0·1	0·9	1·2	1·4	2·5	2·3
1898 Corn	1·2	0·8	0·8	1·1	1·3	2·3	2·1
Highest rate, wheat, 1898, 3¼c. ; lowest, 1¼ ; average for the season, 1·5c.							
1899 Wheat	2·0	2·0	2·2	2 5	3·1	3·5	2·5
1899 Corn	1·8	1·9	2·0	2·3	3·2	3·4	2·3
Highest rate, wheat, 1899, 3⅜c. ; lowest, 1⅞c. ; average for the season, 2·5c.							
1900 Wheat	1·8	1 9	2·1	1·6	1·7	1·7	2·0
1900 Corn	1·6	1·7	2·0	1·5	1·6	1·5	1·8
Highest rate, wheat, 1900, 3c. ; lowest, 1¼c. ; average for the season, 1·8c.							
1901 Wheat	1·9	1·5	1·6	1·3	1·6	1·3	2·0
1901 Corn	1·8	1·3	1·4	1·2	1·5	1·2	1·2
Highest rate, wheat, 1951, 2½c. ; lowest, 1¼c. ; average for the season, 1·60c.							
1902 Wheat	1·3	1·3	1·2	1 6	1·5	1·7	1·9
1902 Corn	1·2	1·1	1·1	1·4	1·4	1·6	1·7
Highest rate, wheat, 1902, 2½c. ; lowest, 1⅜c. ; average for the season, 1·5c.							
1903 Wheat	1·4	1·3	1·3	1·2	1·2	1·4	1·8
1903 Corn	1·3	1·2	1·2	1·0	1·0	1·3	1·6
Highest rate, wheat, 1903, 2¼c. ; lowest, 1¼c. ; average for the season, 1·4c.							
1904 Wheat	2·5	1·7	1·0	1·2	1·2	1·3	1·6
1904 Corn	2·5	1·3	0·8	1·0	1·1	1·2	1·5
Highest rate, wheat, 1904, 3c. ; lowest, 1c. ; average for the season, 1·5c.							
1905 Wheat	1·1	1·3	1·3	1·4	1 4	2·2	2 8
1905 Corn	1·0	1·2	1·1	1·2	1·3	2·0	2·7
Highest rate, wheat, 1905, 3c. ; lowest, 1⅛c. ; average for the season, 1·7c.							

Lake Freight from Duluth to Buffalo on Wheat (as reported by the Secretary of the Merchants' Exchange, Buffalo, N.Y.)

The following statement shows the lake freight rates on wheat from Duluth to Buffalo, during the season 1905 :—

1905.	Wheat. Bushels.	1905.	Wheat. Bushels.
	cts.		cts.
April 8	2¼	Sept. 13	2
" 27	2	" 28	2¼
May 5	1⅜	Oct. 2	2⅜
" 15	1⅝	" 3	2⅝
" 20	1¾–2	" 4	3
June 2	1¼–1⅜	" 11	3¼
" 10	1⅜–1⅝	" 16	3¼–3½
July 30	1⅝	" 18	3½
Aug. 1	1½	" 24	3¾
" 12	1⅜	" 28	4
" 17	1¾–2	Nov. 14 to close	3½

In 1885 the range of freights on wheat, Duluth to Buffalo, was 1½ to 5c.; in 1886, 3¼ to 8c.; in 1887, 5 to 8c.; in 1888, 2 to 5c.; in 1889, 2 to 5c.; in 1890, 2 to 5c.; in 1891, 1¼ to 9½c.; in 1892, 2¼ to 4c.; in 1893, 1¼ to 3½c.; in 1894, 1¼ to 3c.; in 1895, 2 to 6c.; in 1896, 1¼ to 3c.; in 1897, 1 to 2½c.; in 1898, 1 to 3½c.; in 1899, 2½ to 6c.; in 1900, 1½ to 3¾c.; in 1901, 1⅛ to 3¾c.; in 1902, 1 to 2¼c.; in 1903, 1⅛ to 2¾c.; in 1904, 1 to 5c.; and in 1905, 1¼ to 4c. per bushel.

The first departure by lake, at Duluth in 1904, was May 14; in 1903 was April 9; in 1902 was on March 31; in 1901 was on May 6; in 1900 was on April 22; in 1899, on April 29; in 1898, was on April 16; in 1896, on April 22; and in 1895, on April 21. In 1894 season opened on April 19; in 1893, on May 8; in 1892, on April 21; in 1891, on April 30; in 1890, on March 26; in 1889, on April 20; in 1888, on May 12; in 1887, May 4; in 1886, on May 7.

Wheat was shipped at Kingston, Canada, per bushel, during the season of 1887, at 6¼ to 7¾c.; in 1888, at 4 to 5c.; in 1889, at —; in 1890, 5¾, 5½, 4½, 4¼, 4c.; in 1891, during May, 3¾, 3½, 2½c.; during June, 3c.; and on July 25, 2½c.; in 1892, 5c. in April; 5 to 5¼c. in May; 4c. in June; 4½c. in July; 3c. in August; 6 to 6¼c. in October; in 1903, ranged from 5½ to 4½c. in April; 4½ to 4¾c. in May; 4 to 3½c. in June; 2¾ to 3c. in July; 3½ to 3¾c. in September; no figures quoted after that date. In 1894 ranged from 3¼ to 3½c. in May; 3½c. in June; 2½c. in July; 2½ to 3¼c. in August; 4c. in September, and 4½c. in October. On August 25 and November 3, 1894, wheat to Ogdensburg, at 3¼c. and 4½c. respectively. In 1895, wheat to Kingston from 3c. to 5c. In 1896, wheat to Kingston from 3c. to 5½c.; and in 1897, wheat to Kingston from 3c. to 3½c., according to time of year; 1898 to 1899 not given.

Lake Freights from Toledo to Buffalo on Wheat.

The following statements show the ruling rates of lake freights on wheat from Toledo to Buffalo, during the season of 1905 on the dates specified, as reported by the Secretary, Merchants' Exchange, Buffalo.

Date, 1905.	Wheat and Corn per Bushel.	Date, 1905.	Wheat and Corn per Bushel.
	Cts.		Cts.
Opening to April 1	1	April 1 to July 14	1¼
July 14 to August 1.	1½–1⅝	August 1 to close	1¾–1½

The range for 1886 was 1¾ to 3c.; for 1887, 2¼ to 3c.; for 1888, 1½ to 2⅛c.; for 1889, 1¾ to 2c.; for 1890, 1½ to 2c.; 1891, 1 to 3c.; for 1892, 1½ to 2½c.; for 1893, 1 to 2c.; for 1894, 1 to 2c.; for 1895, 1 to 2¼c.; for 1896, 1¼ to 1¾c.; for 1897, 1 to 1¼c.; for 1898, 1 to 1½c.; for 1899, 1½ to 2c.; for 1900, 1½ to 2c.; for 1901, 1¼ to 1½c.; for 1902, 1⅛ to 2c.; for 1903, 1⅛ to 1½c.; for 1904, 1 to 1¾c.; and for 1905, 1 to 1½c. per bushel.

From Toledo to Ogdensburg, wheat and corn shipped at 6 to 7c. in 1887; at 4½ to 6c. for wheat and 5c. for corn in 1888; and 5 to 5⅞c. for wheat in 1889 per bushel. From Toledo, on October 8, 1887, corn shipped to Kingston at 3½c., and on November 12, at 4½c. per bushel. In 1888, corn, Toledo to Kingston, 4½ to 3c.; and wheat at 3½ to 3c. per bushel. In 1889, wheat, Toledo to Kingston, 3c.; and in 1891, rye, Toledo to Kingston at 3c. per bushel. From Toledo, on June 2, 1887, wheat shipped to Montreal by propeller at 6½c.; on June 14, corn at same price; but on September 26, the rate on corn was only 5c. per bushel. In 1888, corn, Toledo to Montreal, at 6 to 5¾c., and wheat at 5½c. per bushel. From 1889 to 1899, no shipments to Montreal or other places in Canada reported.

Canal Freight from Buffalo to New York.

The following shows the changes in the ruling rates of freight to New York from Buffalo, on the days specified in 1905 (as reported by the Secretary, Merchants' Exchange, Buffalo).

Date, 1905.	Wheat, Bushels.	Corn, Bushels.	Date, 1905.	Wheat, Bushels.	Corn, Bushels.
	Cts.	Cts.		Cts.	Cts.
May 4	4	.....	Oct. 3	4	3¾
June 1	3½	.....	" 10	4¼	4
" 12	3⅝	.....	" 14	4½	4¼
Aug. 28	3⅝	3¼	" 28	4¾	4⅝
			Nov. 2 to close	5	4⅝

Freight on oats varied from 2 to 3¾c. per bushel. Pine lumber, per 1,000 feet. was carried from Buffalo to Tonawanda to New York as follows: Opened at $1.85; June, $1.85; July, $1.90; August, $1.90; September, $2; October, $2; to close, $2. Rates to Albany opened $1.50; June, $1.50; July, $1.50; August, $1.50 to $1.75; September, $1.75; October, $1.75 to $1.85; to close at $2 to $2.10.

AVERAGE CANAL FREIGHTS.

BUFFALO TO NEW YORK.

The following statement shows the average rates of canal freights on wheat and corn between Buffalo and New York during each month in the past ten years, and the highest and lowest rates on wheat and average rate on wheat on each :—

(Reported by Sec. Merchants' Exchange, Buffalo.)

	Grain.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.
		Cents.	Cents.	Cents.	Cents.	Cents.	Cents.	Cents.
1896	Wheat	3·7	3·7	3·7	3·7	3·7	3·7	3·8
	Corn	3·5	3·5	3·5	3·5	3·5	3 5	3·6
Highest rate, wheat, 1896, 4c.; lowest, 3·1c.; average for the season, 3·7c.								
1897	Wheat	2·6	2·2	2·3	2·5	3·3	3·1	3·5
	Corn	2·2	1·8	2·0	2 2	2·8	2·6	3·0
Highest rate, wheat, 1897, 3·5c.; lowest, 2c.; average for the season, 2·8c.								
1898	Wheat	3·0	2·9	2·8	2·7	2·6	3·0	3·0
	Corn	2·5	2·3	2·4	2·1	2·2	2·6	2·6
Highest rate, wheat, 1898, 3·4c.; lowest, 2·5c.; average for the season, 2·8c.								
1899	Wheat	2·5	2·7	2·4	2·5	2·5	3·6	4·2
	Corn	2·3	2·3	2·1	2·1	2·2	3·0	3·5
Highest rate, wheat, 1899, 4·5c.; lowest, 2·5c.; average for the season, 2·8c.								
1900	Wheat	2·4	2·2	2·3	2·3	2·2	2·7	3·5
	Corn	2·1	2·0	2·1	2·0	2·0	2·4	3·0
Highest rate, wheat, 1900, 3½c.; lowest, 2c.; average for the season, 2·5c.								
1901	Wheat	3.4	3·2	3·2	3·2	3·3	4·0	4·1
	Corn	2·7	2·8	2·8	2·9	3·1	3.7	3·8
Highest rate, wheat, 1901, 4⅜c.; lowest, 3¼c.; average for the season, 3·5c.								
1902	Wheat	4·0	3·8	3·3	3·3	3·8	4·0	4·1
	Corn	3·6	3·4	3·1	3·1	3·5	3·7	3 8
Highest rate, wheat, 1902, 4½c.; lowest, 3⅜c.; average for the season, 3·8c.								
1903	Wheat	4·1	4·1	4·2	4·2	4·0	3·7	3·7
	Corn	3·7	3·7	3·8	3.8	3·6	3 3	3·3
Highest rate, wheat, 1903, 4¼c.; lowest, 3⅜c.; average for the season, 4c.								
1904	Wheat	3·5	3 2	2·7	2·6	2·8	3·5	3·7
	Corn	3·0	2·7	2·4	2·1	2·4	3·0	3·1
Highest rate, wheat, 1904, 3⅝c.; lowest, 2½c.; average for the season, 3·2c.								
1905	Wheat	4·0	3·4	3·3	3·3	3·6	4·3	5·0
	Corn	3·6	3·0	3·0	3·0	3·2	4·1	4·8
Highest rate, wheat, 1905, 5c.; lowest, 3⅜c.; average for the season, 3·9c.								

Note.—Canals free of tolls since 1882.

FREIGHT, TOLLS, ELEVATING AND STORAGE RATES COMPARED.

The following statement shows the receipts of grain and flax seed at Buffalo, the average canal freight on wheat, and the tolls on wheat to New York, and the elevating and storage rates at Buffalo for a series of years (as reported by Secretary, Merchants' Exchange, Buffalo) :—

Year.	Grain received.	Average Canal Freight on Wheat.	Tolls on Wheat.	Elevating, including Storage.
	Bush.	Cts.	Cts.	Cts.
1870	32,208,039	11·2	3·1	1¼
1871	61,319,313	12·6	3·1	1¼
1872	58,703,666	13·0	3·1	1¼
1873	65,498,955	11·4	3·1	1¼
1874	55,660,198	10·0	3·1	1¼
1875	52,833,451	7·9	2·0	1
1876	44,207,121	6·6	2·0	1
1877	61,822,292	7·4	1·0	1
1878	78,828,443	6·0	1·0	1
1879	75,089,768	6·8	1·0	1
1880	105,133,009	6·5	1·0	1
1881	56,389,827	4·7	1·0	½
1882	51,501,503	5·4	1·0	½
1883	65,722,080	4·9	None.	½
1884*	58,011,800	4·2	do	½
1885*	52,671,090	3·8	do	½
1886*	75,570,850	5·0	do	½
1887*	87,073,570	4·6	do	½
1888*	73,977,390	3·4	do	½
1889*	92,290,550	4·8	do	½
1890*	91,994,680	3·8	do	½
1891*	135,315,510	3·5	do	½
1892*	138,872,560	3·5	do	½
1893*	140,796,410	4·6	do	½
1894*	105,435,577	3·2	do	½
1895*	121,225,497	2·2	do	½
1896*	172,474,664	3·7	do	½
1897*	204,964,103	2·8	do	½
1898*	221,383,945	2·8	do	½ à 0
1899*	153,393,184	3·0	do	½
1900*	157,655,968	2·5	do	½
1901	132,646,828	3·5	do	½
1902	124,624,386	3·8	do	½
1903	140,438,822	4·0	do	½
1904	100,838,000	3·2	do	½
1905	126,465,729	3·9	do	½

NOTE.—Prior to 1870 tolls 6·21 cents per bushel, and the elevating charge 2 cents per bushel.
* Including flax seed.

SESSIONAL PAPER No. 20a

AVERAGE FREIGHT CHARGES PER BUSHEL.

For the transportation of Wheat and Corn from Chicago to New York for a series of years.

(From Report of Board of Trade, Chicago.)

Year.	Corn.			Wheat.		
	By lake and canal.	By lake and rail.	By all rail.	By lake and canal.	By lake and rail.	By all rail.
	$	$	$	$	$	$
1858	·127	.....	·3619	·1550	.....	·3861
1859	·1570	.....	·3248	·1663	.....	·3480
1860	*a* ·0833	.....	·3248	*a* ·095	.....	·3480
1861	*a* ·1062	.....	·3881	*a* ·1210	.....	·4158
1862	*a* ·0957	.....	·4480	*a* ·1062	.....	·4800
1863	*a* ·063	.....	·4592	*a* ·072	.....	·4920
1864	*a* ·09	.....	·5600	*a* ·0952	.....	·60
1865	*a* ·0864	.....	·4188	*a* ·0894	.....	·4488
1866	*a* ·1075	.....	·4312	*a* ·1377	.....	·4620
1867	*a* ·0511	.....	·4176	*a* ·08	.....	·4475
1868	*a* ·0604	.....	·3532	*a* ·0802	.....	·3784
1869	*a* ·0584	·2355	·3320	*a* ·0651	·2520	·3557
1870	*a* ·16	·2220	·28	*a* ·0677	·2250	·30
1871	*a* ·0754	·2372	·2968	*a* ·0687	·2542	·3180
1872	*a* ·1072	·2660	·3266	*a* ·1110	·2950	·3499
1873	*a* ·0816	·2298	·2893	*a* ·0917	·2461	·3102
1874	*a* ·0382	·1388	·2450	*a* ·0400	·1709	·2625
1875	*a* ·034	·1303	·2240	*a* ·0378	·1389	·2400
1876	*b* ·0875	·1079	·1574	*b* ·0982	·1136	·1686
1877	*b* ·0959	·1406	·1890	*b* ·1109	·1546	·2050
1878	*b* ·0883	·1053	·1652	*b* ·0996	·1209	·1770
1879	*b* ·1049	·1220	·1456	*b* ·1187	·1313	·1774
1880	*b* ·1341	·1443	·1748	*b* ·1313	·1580	·1980
1881	*b* ·0777	·0942	·1340	*b* ·0867	·1049	·1440
1882	*b* ·0672	·1028	·1350	*b* ·0723	·1091	·1447
1883	*b* ·0803	·11	·1512	*b* ·0901	·1163	·1620
1884	*b* ·0655	·085	·1232	*b* ·07	·10	·1320
1885	*b* ·063	·0801	·1232	*b* ·0654	·0902	·1320
1886	*b* ·0845	·1120	·14	*b* ·0910	·12	·1500
1887	*b* ·0850	·1120	·1470	*b* ·0950	·12	·1575
1888	*b* ·0671	·1026	·1354	*b* ·0705	·1114	·1450
1889	*b* ·0532	·0819	·126	*b* ·0692	·0897	·1500
1890	*b* ·0593	·0732	·1136	*b* ·0676	·0852	·1430
1891	*b* ·0632	·0753	·1400	*b* ·0695	·0857	·1500
1892	*b* ·0595	·0721	·1296	*b* ·0645	·0759	·1380
1893	*b* ·0718	·0797	·1365	*b* ·0766	·0848	·1463
1894	*b* ·0493	·0650	·1232	*b* ·0511	·0700	·1320
1895	*b* ·0450	·0640	·1029	*b* ·0486	·0696	·1189
1896	*b* ·0575	·0615	·1050	*b* ·0619	·0661	·1200
1897	*b* ·0453	·0692	·1143	*b* ·0522	·0742	·1259
1898	‡ ·0381	·0441	·0980	‡ ·0445	·0491	·1200
1899	‡ ·0508	·0583	·1008	‡ ·0581	·0663	·1160
1900	‡ ·0407	·0472	·0919	‡ ·0449	·0510	·0996
1901	‡ ·0461	·0516	·0921	‡ ·0511	·0554	·0988
1902	‡ ·0483	·0551	·0994	‡ ·0526	·0589	·1062
1903	‡ ·0485	·0578	·1054	‡ ·0540	·0637	·1129
1904	‡ ·0363	·0482	·1038	‡ ·0473	·0550	·1112
1905	‡ ·0476	·0519	·0940	‡ ·0553	·0640	·0990

a To Buffalo only. *b* Including Buffalo charges and tolls. ‡ Exclusive of Buffalo charges.

FOREIGN FREIGHT RATES.

ANNUAL average Freight Rates on Grain, Flour and Provisions (per 100 lbs.) from Chicago to European Ports, by all Rail to Sea-board and thence by steamers.

Shipped to	Articles.	1905.	1904.	1903.	1902.	1901.
		$	$	$	$	$
Liverpool	Grain	·1916	·2019	·2268	·2085	·2147
"	Sacked flour	·2240	·2100	·2519	·2350	·2300
"	Provisions	·3849	·3656	·4190	·3625	·3600
Glasgow	Grain	·2000	·2238	·2443	·2175	·2410
"	Sacked flour	·2250	·2320	·2538	·2275	·2438
"	Provisions	·4323	·4406	·4688	·4188	·4516
London	Grain	·2023	·2150	·2356	·2175	·2323
"	Sacked flour	·2364	·2225	·2519	·2400	·2550
"	Provisions	·4088	·4406	·4406	·3906	·4475
Antwerp	"	·4370	·4828	·4969	·4150	·4625
Hamburg	"	·4575	·4600	·4700	·3900	·4400
Amsterdam	"	·4542	·4200	·4200	·4000	·4500
Rotterdam	"	·4553	·4200	·4200	·4000	·4500
Copenhagen	"	·4866	·4688	·4969	·4200	·4775
Stockholm	"	·5147	·4969	·5250	·4500	·5325
Stettin	"	·4818	·4688	·4969	·4200	·4775
Bordeaux	"	·5145	·5625	·5625	·5125	·5425

LAKE FREIGHTS ON COAL FROM BUFFALO TO CHICAGO AND OTHER PORTS.

The following statement shows the average freight rate on Coal per net ton, in cents from Buffalo to the ports named, during the seasons of 1904 and 1905.

(Buffalo Merchants' Exchange.)

	1904.	1905.
Freight on hard Coal, Buffalo to Chicago, per ton	43	46
" " Milwaukee "	44	45
" " Duluth "	32	39

SESSIONAL PAPER No. 20a

STATEMENT showing the Total Values of Foreign Merchandise transported in the In-Transit and Transhipment Trade of the United States with the British North American Possessions, during each year from 1871 to 1905.

Year ending June 30.	Received for transit and transhipment from British North American Possessions			Shipped in transit to or transhipment for British North American Possessions.		
	By Land.	By Water.	Total.	By Land.	By Water.	Total.
	$	$	$	$	$	$
1871	6,035,585	1,918,475	7,954,060	15,624,591	2,781,884	18,406,475
1872	8,237,859	1,038,310	9,276,169	19,357,342	4,685,448	24,042,790
1873	11,700,787	1,693,906	13,394,693	20,178,666	6,605,518	26,784,184
1874	12,695,590	1,468,100	14,163,690	20,572 299	6,938,430	27,510,739
1875	16,890,022	1,152,555	18,042,577	23,794,129	6,006,166	29,800,295
1876	21,301,262	1,290,640	22,591,902	19,369,958	5,049,930	24,419,888
1877	10,835,642	1,636,053	12,471,695	17,066,855	1,910,298	18,977,153
1878	10,314,534	1,889,524	12,204,058	11,914,321	998,364	12,912,685
1879	10,098,998	1,982,097	12,081,095	12,030,635	858,952	12,889,587
1880	15,265,177	1,869,570	17,134,747	16,388,673	653,430	17,042,003
1881	15,200,967	1,801,079	17,002,046	22,828,270	527,994	23,356,264
1882	24,665,029	3,878,149	28,543,178	36,613,465	982,019	37,595,484
1883	26,382,370	3,420,450	29,802,820	38,389,318	923,250	39,312,568
1884	13,043,498	375,729	13,419,227	22,120,587	818,798	22,939,385
1885	12,755,686	767,927	13,523,613	19,105,476	594,982	19,700,458
1886	9,593,344	1,267,676	10,861,020	19,428,867	812,212	20,241,079
1887	9,377,041	2,127,680	11,504,721	20,178,365	2,009,590	22,187,955
1888	6,309,024	2,033,793	8,342,817	13,347,876	2,063,780	15,611,656
1889	8,303,171	3,032,952	11,336,123	19,299,966	2,849,263	22,149,229
1890	13,524,298	2,477,612	16,001,910	24,788,152	2,547,052	27,335,201
1891	18,065,925	1,714,545	19,780,470	25,185,706	2,697,317	27,883,023
1892	21,346,413	2,581,842	23,928,255	23,989,746	2,714,368	26,704,114
1893	13,807,662	4,077,911	17,885,573	20,151,432	2,568,679	22,720,111
1894	13,501,664	3,840,429	17,342,093	17,974,332	2,207,884	20,182,216
1895	14,068,922	5,552,940	19,621,862	18,752,226	2,970,068	21,722,294
1896	13,408,578	6,735,027	20,143,605	18,335,373	3,453,043	21,788,416
1897	17,665,422	6,928,401	24,593,823	18,430,841	2,232,835	20 663,676
1898	27,277,049	12,059,935	39,336,984	22,792,971	3,457,667	26,250,638
1899	28,248,759	8,312,962	36,561,721	22,593,761	2,941,282	25,535,043
1900	33,346,150	10,781,749	44,127,899	27,996,981	3,481,290	31,478,271
1901	37,680,071	7,066,038	44,746,109	27,899,903	2,655,676	30,555,579
1902	46,761,353	14,948,545	61,709,898	30,518,576	7,090,090	37,608,666
1903	45,026,422	16,460,954	61,487,376	32,349,527	3,178,199	35,527,726
1904	38,565,646	10,378,169	48,943,815	32,388,050	1,792,925	34,180,975
1905	33,785,940	8,716,958	42,502,898	28,214,191	1,870,526	30,084,717

NOTE.—This movement forms no part of the import and export trade.

TOTAL Values of Merchandise received from British North America for Immediate United States to British North America, and so shipped,

YEAR ENDING JUNE 30.	COUNTRIES FROM WHICH RECEIVED.				
	British North America.				
	Nova Scotia, New Brunswick, and Prince Edward Island.	Quebec, Ontario, Manitoba and the North-west Territories.	British Columbia.	Newfoundland and Labrador.	Total.
	$	$	$	$	$
1873	495,289	2,894,164	5,240	.....	13,394,693
1874	449,655	13,616,344	97,691	.....	14,163,690
1875	443,570	17,342 933	256,074	.....	18,042,577
1876	261,443	22,134,275	195,047	1,137	22,591,902
1877	160,658	12,092,619	218,418	.....	12,471,695
1878	163,978	11,627,114	412,966	.....	12,204,058
1879	194,129	11,606,832	280,079	55	12,081,095
1880	215,131	16,782,315	137,271	.....	17,134,717
1881	171,383	16,758,108	72,555	.....	17,002,046
1882	164,990	28,265,083	113,018	87	28,543,178
1883	561,791	29,204,031	36,973	25	29,802,820
1884	656,233	12,574,953	188,041	.....	13,419,227
1885	933,806	12,280,483	308,691	633	13,523,613
1886	1,165,973	9,303,864	359,104	32,079	10,861,020
1887	1,684,730	9,606,175	213,816	.....	11,504,721
1888	1,525,048	6,417,701	372,934	27,134	8,542,817
1889	2,596,233	8,355,178	294,859	89,853	11,336,123
1890	3,070,657	12,449,772	306,897	174,584	16,001,910
1891	3,859,079	15,310,945	422,806	187,640	19,780,470
1892	4,393,062	19,005,704	201,373	328,116	23,928,255
1893	1,009,597	16,404,425	89,565	381,986	17,885,573
1894	1,070,676	15,649,881	348,069	273,467	17,342,093
1895	1,199,782	17,774,108	411,557	236,415	19,621,862
1896	1,118,185	18,038,931	582,469	404,020	20,143,605
1897	1,118,055	22,497,151	611,322	367,295	24,593,823
1898	1,440,950	35,596,039	1,744,289	555,706	39,336,984
1899	1.618,399	30,673,265	3,708,928	561,129	36,561,721
1900	2,002,264	37,657,936	3,914,668	553,031	44,127,899
1901	1,788,641	38,382,558	4,070,940	503,970	44,746,109
1902	2,206,596	54,332,135	4,531,932	639,241	61,709,898
1903	2,191,174	55,023,403	3,490,180	782,619	61,487,376
1904	1,843,249	42,259,796	4,125,305	715,465	48,943,815
1905	1,465,066	37,094,646	3,154,327	788,859	42,502,898

SESSIONAL PAPER No. 20a

Transit across United States Territory for Immediate Transhipment in Ports of the during each Year from 1873 to 1905, inclusive.

Countries to which Shipped.					Year ending June 30.
British North America.					
Nova Scotia, New Brunswick, and Prince Edward Island.	Quebec, Ontario, Manitoba and the North-west Territories.	British Columbia.	Newfoundland and Labrador.	Total.	
$	$	$	$	$	
5,282,290	21,320,174	181,720	.....	26,784,184	1873
7,150,036	19,843,169	317,534	.....	27,310,739	1874
8,999,596	20,283,639	517,060	.....	29,800,295	1875
9,102,600	14,658,358	658,836	94	24,419,888	1876
2,879,422	15,551,238	544,018	2,475	18,977,153	1877
951,268	11,436,470	524,013	934	12,912,685	1878
889,539	11,520,877	476,824	2,347	12,889,587	1879
1,643,716	14,866,663	531,436	288	17,042,103	1880
1,778,836	20,857,827	719,268	333	23,356,264	1881
2,732,665	34,005,845	855,784	1,190	37,595,484	1882
2,455,557	35,878,389	971,307	7,335	39,312,568	1883
1,740,900	19,717,466	1,475,833	5,186	22,939,385	1884
1,635,442	16,448,942	1,615,293	781	19,700,458	1885
2,040,298	16,369,429	1,825,178	6,174	20,241,079	1886
1,621,748	19,930,296	635,841	70	22,187,955	1887
1,781,028	13,459,169	370,322	1,137	13,611,656	1888
2,484,787	18,993,957	665,527	2,704	22,146,975	1889
5,277,210	21,140,198	913,106	4,690	27,335,204	1890
5,605,614	21,695,992	547,144	34,273	27,883,023	1891
2,079,783	24,189,181	428,188	6,962	26,704,114	1892
2,052,357	20,232,400	409,055	26,289	22,720,111	1893
1,831,417	17,880,688	463,471	6,640	20,182,216	1894
1,834,745	19,320,714	558,991	7,844	21,722,294	1895
1,572,783	19,441,279	772,586	1,768	21,788,416	1896
1,682,538	17,660,211	1,312,797	8,130	20,663,676	1897
1,536,413	22,400,622	2,294,356	19,247	26,250,638	1898
1,215,518	19,605,819	4,685,559	27,147	25,535,043	1899
1,245,771	27,452,333	2,730,612	49,555	31,478,271	1900
1,161,875	24,634,780	4,687,000	71,924	30,555,579	1901
5,086,469	27,049,441	5,441,234	31,522	37,608,666	1902
1,268,469	32,290,433	1,949,975	18,849	35,527,726	1903
1,178,806	31,097,453	1,865,573	39,143	34,180,955	1904
1,052,641	27,248,680	1,735,442	47,954	30,084,717	1905

TOTAL Values of Merchandise received from the Principal and other Foreign Countries in Ports of the United States to other Foreign Countries,

YEAR ENDING JUNE 30.	COUNTRIES FROM WHICH RECEIVED.					
	Great Britain and Ireland.	Germany.	British North American Possessions.	Mexico.	Cuba.	Other Countries.
	$	$	$	$	$	$
1868	10,664,576	132,074	4,864,209	14,967	4,263,621	1,576,157
1869	10,891,698	150,382	5,852,678	60,715	2,373,474	1,767,037
1870	10,210,455	302,806	7,215,973	103.977	3,309,227	2,049,422
1871	13,473,915	322,110	7,954,060	344,179	1,367,573	1,913,200
1872	17,633,231	227,232	9,276,169	174,104	2,227,422	1,847,162
1873	19,144,815	250,704	13,394,693	286,607	5,737,904	1,284,462
1874	18,832,900	211,907	14,163,690	151,920	4,563,869	926,390
1875	18,657,276	325,648	18,042,577	115,527	1,759,308	1,785,947
1876	14,304,197	290,489	22,591,902	226,315	2,962,963	1,686,789
1877	13,732,085	337,897	12,471,695	158,852	1,095,451	1,460,793
1878	10,084,510	378,768	12,204,058	146,822	3,041,957	1,481,033
1879	8,795,340	521,917	12,081,095	222,320	1,954,042	1,521,153
1880	10,311,139	620,704	17,134,747	239,655	3,606,099	1,942,405
1881	14,898,052	721,344	17,002,046	217,444	2,642,550	2,222,122
1882	18,911,637	755,560	28,543,178	380,100	5,662,926	3,812,058
1883	20,242,222	1,149,195	29,802,820	281,309	3,126,069	4,276,712
1884	14,038,694	948,901	13,419,227	408,124	3,655,568	4,345,878
1885	11,064,186	1,140,548	13,523,613	308,293	4 853,354	3,545,544
1886	13,142,644	1,462,414	10,861,020	216,078	6,797,879	4,558,229
1887	17,977,200	1,670,952	11,504,721	111,635	6,780,853	4,720,760
1888	13,707,240	1,817,511	8,342,817	120,497	4,820,846	4,534,298
1889	19,080,647	2,582,456	11,336,123	296,654	9,054,736	5,052,610
1890	20,664,427	2,735,546	16,002,384	639,050	9,759,256	5,898,763
1891	20,879,851	2,819,238	19,780,470	565,338	6,977,901	6,475,119
1892	21,334,783	2,930,571	23,928,255	1,383,455	11,054,445	8,936,228
1893	20,387,339	3,466,885	17,885,573	1,652,200	10,131,171	14,426,669
1894	19,641,622	3,717,749	17,342,093	1,858,367	9,916,742	19,031,011
1895	18,531,083	4,122,899	19,621,862	2,515,091	10,420,277	10,465,981
1896	19,420,751	3,460,489	20,143,605	1,797,161	11,668,243	13,272,521
1897	17,513,324	3,183,390	24,593,823	1,903,924	9,589,820	13,275,822
1898	18,931,226	3,775,038	39,336,984	2,625,521	4,763,587	11,587,069
1899	16 594,043	4,069,828	36,561,721	3,519,942	8,372,450	10,910,462
1900	23,152,099	3,915,766	44,127,899	4,245,695	9,316,066	13,793,937
1901	21,771,394	4,681,613	44,746,109	4,659,259	15,680,902	14,821,842
1902	22,782,353	4,826,666	61,709,898	5,303,403	10,598,013	13,305,527
1903	22,583,099	5,564,526	61,487,376	6,681,984	10,190,906	15,478,227
1904	23,491,354	4,622,814	48,943,815	7,001,399	12,763,500	17,197,068
1905	20,581,822	5,218,572	42,502,898	5,545,098	11,391,223	18,525,147

for Immediate Transit across United States Territory or for Immediate Transhipment and so shipped, for each Year from 1868 to 1905, inclusive.

Countries to which Shipped.						Total Value of Merchandise received and shipped.	Year ending June 30.
Great Britain and Ireland.	Germany.	British North American Possessions.	Mexico.	Cuba.	Other Countries.		
$	$	$	$	$	$	$	$
2,025,023	3,212,123	14,375,419	481,643	116,521	1,304,875	21,516,604	1868
2,693,525	1,547,602	15,033,821	448,300	72,875	1,299,861	21,095,984	1869
2,946,053	2.116,249	16,689,037	321,331	135,915	983,275	23,191,860	1870
4,031,319	1 033,307	18,406,475	346,872	345,224	1,211,840	25,375,037	1871
2,743,494	2 263,819	24,042,790	358,151	179,570	1,797,496	31,385,320	1872
5,144 175	5,622,325	26,784,184	235,113	319,771	1,993,617	40,099,185	1873
5 391 201	3,866,642	27,310,739	665,214	520,493	1,096,387	38,850,676	1874
7.229,912	1,495,285	29,860,295	1,155,004	248,358	757,429	40,686,283	1875
11,791,200	2,958,558	24,419,888	1,129,440	600,061	1,163,508	42,062,655	1876
7,758,501	1,108,298	18,977,153	329,577	306,311	776,933	29,256,773	1877
9.577,050	2,905,230	12,912,685	316,664	319,611	1,305,908	27,337,148	1878
8,175,951	2,252,572	12,889,587	330,968	174,757	1,272,032	25,095,867	1879
10,856,579	3,658,477	17,042,103	300,148	224,848	1,775,594	33,857,749	1880
9,122,079	2,729,246	23,356,264	671,008	177,340	1,648,121	37,704,048	1881
11,592,806	5,336,361	37,595,484	800,025	319,257	2,421,526	58,065,459	1882
11,089,865	2,758,994	39,312,568	2,282,473	352,552	3,081,875	58,878,327	1883
5,288,389	2,960,488	22,939,385	2,748,434	221,061	2,656,635	36,814,392	1884
7,235,519	3,771,524	19,700,458	1,262,515	119,376	2,346,146	34,435,538	1885
8,510,097	3,803,566	20,241,079	1,279,399	452,700	2,751,423	37,038,264	1886
10,052,219	4,353,992	22,187,955	2,002,476	608,121	3,561,358	42,766,121	1887
6,853,195	2,551,043	15,611,656	3,766,180	563,539	3,997,596	33,343,209	1888
9,233,659	4,581,064	22,146,975	4,781,110	892,158	5,768,287	47,403,253	1889
10,656,465	5,097,434	27,335,678	4,944,149	1,215,399	6,450,301	55,699,426	1890
11,968,808	3,640,940	27,883,023	5,052,318	966,851	7,985,977	57,497,917	1891
20,141,862	6,995,419	26,704,114	4,953,911	1,472,980	9,299,451	69,567,737	1892
18,511,287	7,986,637	22,720,111	4,607,549	2,034,761	12,089,492	67,949,837	1893
18,394,865	11,154,933	20,182,216	4,543,455	2,586,919	16,645,187	71,507,575	1894
20,562,325	6,684,735	21,722,294	4,512,293	1,951,985	10,243,561	65,677,193	1895
20,022,263	7,942,844	21,788,416	5,210,607	1,890,705	12,907,932	69,762,770	1896
24,809,259	5,333,860	20,663,676	5,320,563	2,058,454	11,874,291	70,060,103	 1897
33,276,696	3,807,811	26,250,638	5,543,843	1,728,780	10,411,607	81,019,375	1898
29,695,600	5,711,338	25,535,043	5,669,214	2,760,086	10,657,165	80,028,446	... .1899
37,383,450	6,488,502	31,478,271	6,965,660	3,484,521	12,751,058	98,551,462	1900
37,506,242	14,204,010	30,555,579	8,110,116	3,577,929	12,407,243	106,361,119	1901
50,307,083	6,701,903	37,608,666	8,083,313	3,128,575	14,696,320	118,525,860	1902
51,137,598	6,851,163	35,527,726	9,577.354	3,080,344	15,811,933	121,986,118	1903
39,310,136	8,623,603	34,180,975	10,878,351	3,882,760	17,144,125	114,019,950	1904
33,504,288	7,226,276	30,084,717	10,621,300	4,292,983	17,935,196	103,664,760	1905

FOREIGN CARRYING TRADE.

VALUE of the Imports and Exports of the United States carried respectively in cars and other land vehicles, in American vessels and in foreign vessels during each Fiscal Year, from 1857 to 1905 inclusive, with the percentage carried in American vessels (coin and bullion are included from 1857 to 1879 inclusive), as method of transportation of specie and merchandise cannot be separately stated.

Year ending June 30.	Imports.			Exports.			Imports and Exports.				Percentage carried in American vessels.
	In cars and other land vehicles	In American vessels.	In Foreign vessels.	In cars and other land vehicles	In American vessels.	In Foreign vessels.	In cars and other land vehicles	In American vessels.	In Foreign vessels.	Total.	
	$	$	$	$	$	$	$	$	$	$	
1857		259,116,170	101,773,971		251,214,857	111,745,825		510,331,027	213,519,796	723,850,823	70·5
1858		203,700,016	78,913,134		243,491,288	81,153,133		447,191,304	160,066,267	607,257,571	73·7
1859		216,123,428	122,644,702		249,617,953	107,171,509		465,741,381	229,816,211	695,557,592	66·9
1860		228,164,855	134,001,399		279,082,902	121,039,394		507,247,757	255,040,793	762,288,550	66·5
1861		201,544,055	134,106,098		179,972,733	69,372,180		381,516,788	203,478,278	584,995,066	65·2
1862		92,274,100	113,497,629		125,421,318	104,517,667		217,695,418	218,015,296	435,710,714	50·0
1863		109,744,580	143,175,340		132,127,891	199,880,691		241,872,471	343,056,031	584,928,502	41·4
1864		81,212,077	248,350,818		102,849,409	237,442,730		184,061,486	485,793,548	669,855,034	27·5
1865		74,385,116	174,170,336		93,017,756	262,839,588		167,402,872	437,010,124	604,412,996	27·7
1866		112,040,395	333,471,763		213,671,466	351,754,928		325,711,861	685,226,691	1,010,938,552	32·2
8867		117,209,536	300,622,035		180,625,368	280,708,368		297,834,904	581,330,403	879,165,307	33·9
1868		122,965,225	248,659,583		175,106,348	301,886,491		297,981,573	550,546,074	848,527,647	35·1
1869		136,802,024	300,512,231		153,154,748	285,979,781		289,956,772	586,492,012	876,448,784	33·1
1870		153,237,077	309,140,510		199,732,324	329,786,978		352,969,401	638,927,488	991,896,889	35·6
1871	15,187,354	163,285,710	363,020,644	7,798,156	190,378,462	392,801,932	22,985,510	353,664,172	755,822,576	1,132,472,258	31·2
1872	17,635,681	177,286,302	445,416,783	10,015,089	168,044,799	393,929,579	27,650,770	345,341,101	839,346,362	1,212,328,233	28·5
1873	17,070,548	174,739,834	471,806,765	10,799,430	171,566,758	494,915,886	27,869,978	346,306,592	966,723,651	1,340,899,221	25·8
1874	14,513,335	176,027,778	405,320,135	8,509,205	174,424,216	533,885,971	23,022,540	350,451,994	939,206,106	1,312,680,640	26·7
1875	13,083,859	157,872,726	382,949,568	7,304,356	156,385,066	501,838,949	20,388,235	314,257,792	884,788,517	1,119,434,544	25·8
1876	12,148,667	143,389,704	321,139,500	6,324,487	167,686,467	492,215,487	18,473,154	311,076,171	813,354,987	1,142,904,312	27·2
1877	10,697,640	151,834,067	329,565,833	6,767,170	164,826,214	530,354,703	17,464,810	316,660,281	859,920,536	1,194,045,627	26·5
1878	12,965,999	146,499,282	307,407,565	7,511,365	166,551,624	569,583,564	20,477,364	313,050,906	876,991,129	1,210,519,399	25·9
1879	11,983,823	143,590,353	310,499,599	7,439,862	128,425,339	600,769,633	19,423,685	272,015,692	911,269,232	1,202,708,609	22·6
1880	15,142,465	149,317,368	503,494,913	5,838,928	109,029,209	720,770,521	20,981,393	258,346,577	1,224,265,434	1,503,593,404	17·18
1881	17,193,213	133,631,146	491,840,269	8,259,308	116,955,324	777,162,714	25,452,521	250,586,470	1,269,002,983	1,545,041,974	16·22
1882	22,854,946	130,266,826	571,517,802	12,118,371	96,962,919	641,460,967	34,973,317	227,229,745	1,212,978,769	1,475,181,831	15·40
1883	23,003,048	136,002,290	564,175,576	25,089,844	104,418,210	694,331,348	48,092,892	240,420,500	1,258,506,024	1,547,020,316	15·54
1884	20,140,294	135,046,207	512,511,192	26,573,774	98,652,828	615,287,007	46,714,068	233,699,035	1,127,798,199	1,408,211,302	16·60
1885	21,149,476	112,864,052	443,513,801	24,183,299	82,001,691	636,004,765	45,332,775	194,865,743	1,079,518,566	1,319,717,084	14·76
1886	24,555,683	118,942,817	491,937,636	19,144,667	78,406,680	581,973,477	43,700,350	197,349,503	1,073,911,113	1,314,960,966	15·01
1887	27,562,059	121,365,493	543,392,216	21,389,666	72,991,253	621,802,292	48,951,725	194,356,746	1,165,194,508	1,408,502,979	13·80

1888	32,209,459	123,525,298	568,222,357	22,147,368	67,332,175	606,474,964	54,356,827	190,857,473	1,174,697,321	1,419,911,621	13·44
1889	38,227,861	120,782,910	586,120,881	28,436,517	83,022,198	630,942,660	66,664,378	803,805,108	1,217,063,541	1,487,533,027	13·70
1890	40,621,361	124,948,948	623,740,100	32,949,902	77,502,138	747,376,644	73,576,263	202,451,086	1,371,116,744	1,647,139,093	12·29
1891	40,932,755	127,471,678	676,511,763	31,923,439	78,968,047	773,589,324	72,856,194	206,439,725	1,450,101,087	1,729,397,006	11·94
1892	39,726,595	139,139,891	648,535,976	33,220,629	81,033,844	916,023,675	72,947,224	220,173,735	1,564,559,681	1,857,680,610	11·85
1893	44,121,094	127,095,434	695,184,394	43,862,947	70,670,073	733,132,174	87,984,041	197,765,507	1,428,316,568	1,714,066,116	12·2
1894	29,623,095	121,567,193	503,810,334	49,221,427	73,707,023	719,212,122	78,844,522	195,268,216	1,273,022,456	1,547,135,194	13·3
1895	33,201,988	108,229,615	590,538,362	49,902,754	62,277,581	695,357,830	83,104,742	170,507,196	1,285,896,192	1,589,508,130	11·7
1896	35,535,079	117,299,074	626,890,521	61,131,125	70,392,813	751,083,000	96,666,204	187,691,887	1,377,973,521	1,662,331,612	12·00
1897	35,812,620	109,133,454	619,784,338	65,082,305	79,441,823	905,969,428	100,894,925	189,075,277	1,525,753,766	1,815,723,968	11·00
1898	30,427,784	93,535,867	492,086,003	73,283,704	67,792,150	1,090,406,476	103,711,488	161,328,017	1,582,492,479	1,847,531,984	9·30
1899	33,424,821	82,050,118	581,673,550	83,870,907	78,562,088	1,064,590,307	117,295,728	160,612,206	1,646,263,857	1,924,171,791	8·9
1900	44,412,509	104,304,940	701,223,735	110,483,141	96,779,252	1,193,220,689	154,895,650	195,084,192	1,894,444,424	2,244,424,266	9·3
1901	47,100,814	93,055,493	683,015,858	111,900,931	84,343,122	1,291,520,938	159,001,745	177,398,615	1,974,536,796	2,310,937,156	8·2
1902	55,366,711	102,188,002	744,766,235	123,824,337	83,631,985	1,174,263,079	180,191,048	185,819,987	1,919,029,314	2,285,040,349	8·8
1903	66,208,195	123,666,832	835,844,210	138,851,301	91,028,200	1,190,262,178	205,059,496	214,695,032	2,026,106,388	2,445,860,916	9·1
1904	66,239,120	132,253,065	790,595,186	152,736,889	97,482,054	1,210,608,328	220,976,009	229,735,119	2,001,203,514	2,451,914,642	10·3
1905	78,725,270	160,649,571	878,138,230	154,234,890	126,891,607	1,210,618,144	232,960,160	287,541,178	2,088,756,374	2,609,257,712	11·09

NOTE.—1. The amounts carried in cars and other land vehicles, were not separately stated prior to July 1, 1870. 2. Exports are stated in mixed gold and currency values from 1862 to 1879, inclusive.

C.—TABLE showing the Tonnage of the undermentioned Articles moved

Years.	Vegetable Food.						
	Flour.	Wheat.	Corn.	Barley.	Oats.	Rye.	Other Vegetable Food.*
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1869	71,051	670,534	256,475	99,012	92,309	13,489	99,743
1870	54,978	658,524	193,129	123,191	117,941	19,520	127,727
1871	41,211	748,549	672,057	113,992	129,891	34,563	109,935
1872	20,534	403,903	902,753	120,061	92,959	13,357	120,753
1873	19,307	803,064	637,296	70,586	70,028	30,160	114,735
1874	29,134	772,163	519,203	98,654	59,408	8,215	280,821
1875	17,635	744,293	282,031	104,475	62,717	8,309	86,090
1876	9,290	416,376	365,254	96,494	52,147	19,949	104,783
1877	8,923	448,043	723,458	139,453	66,045	35,948	77,114
1878	5,904	844,555	734,993	89,534	85,029	64,613	88,106
1879	7,164	949,466	621,180	96,144	23,164	59,210	77,071
1880	8,266	966,052	1,156,619	106,247	20,893	26,340	86,673
1881	6,926	444,832	475,823	81,587	30,321	15,484	61,588
1882	9,372	642,215	251,687	96,650	22,180	43,372	53,300
1883	9,047	573,740	522,978	58,787	51,607	95,246	67,595
1884	7,251	790,409	198,216	65,008	52,696	71,462	51,944
1885	6,869	565,922	359,982	64,587	8,234	10,211	47,505
1886	9,005	993,129	354,765	62,854	7,278	3,073	59,782
1887	4,089	936,840	446,617	75,458	35,365	6,717	47,678
1888	3,287	491,419	499,218	41,100	70,315	12,532	49,087
1889	4,429	484,141	592,550	66,110	63,674	36,329	49,663
1890	3,489	353,738	616,702	90,754	48,438	21,657	33,123
1891	3,126	756,101	142,141	71,903	16,362	68,771	33,951
1892	4,879	620,768	150,269	51,596	72,444	4,236	33,807
1893	2,367	1,093,927	252,283	49,651	24,714	6,518	20,656
1894	2,909	903,361	275,377	89,700	100,874	5,288	22,620
1895	2,240	280,550	94,403	77,868	87,839	205	59,400
1896	7,963	408,872	100,227	109,967	197,713	77.210	55,230
1897	3,206	180,035	312,776	100,337	50,345	66,387	31,489
1898	1,854	69.986	364,248	89,906	76,244	7,745	43,044
1899	1,247	282,422	92,670	78,627	93,733	5,931	22,856
1900	1,171	138,302	189,013	63,204	36,435	10,478	34,254
1901	747	214,854	87,392	55,502	88,521	10.326	99,757
1902	1,328	291,938	33,001	75,314	44,678	18,503	24,291
1903	1,075	143,832	191,351	71,837	62,326	12,027	30,153
1904	1,297	101,260	68,381	88,626	82,824	2,631	16,584
1905	230	110,085	26,223	96,847	94,437	3,717	14,661

* Apples, meal of all kinds, potatoes.

on all Canals in the State of New York, during a series of thirty-seven years.

	Heavy Goods.					
Total.	Railway Iron.	Other Iron.	Salt.	Coal.	Ores.	Total.
Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1,302,613	137,677	79,652	263,333	1,324,408	183,992	1,989,062
1,295,010	135,930	89,708	266,740	1,558,185	238,802	2,289,365
1,850,198	178,269	100,310	248,709	1,194,037	289,952	2,011,277
1,674,320	161,667	96,996	248,558	1,462,590	377,592	2,347,403
1,745,171	53,363	62,581	216,706	1,625,859	415,968	2,374,477
1,767,598	24,511	82,955	173,590	1,413,162	232,544	1,926,762
1,305,550	36,603	95,305	186,785	1,217,091	283,219	1,819,003
1,064,293	11,691	69,450	114,070	1,036,698	173,530	1,405,439
1,498,984	10,341	58,828	156,918	1,286,881	250,573	1,763,541
1,912,734	8,385	65,642	139,927	889,873	210,078	1,313,905
1,833,399	27,634	99,568	136,021	971,074	314,411	1,548,708
2,371,090	93,613	139,993	144,487	959,342	370,884	1,709,319
1,116,561	78,650	205,005	113,756	1,092,003	337,873	1,827,287
1,118,776	58,921	122,786	108,040	1,228,435	364,361	1,882,543
1,379,000	46,553	47,412	190,392	1,152,849	293,892	1,731,098
1,236,986	28,513	54,471	161,788	954,288	210,610	1,400,670
1,063,310	12,215	38,726	161,272	1,025,941	195,750	1,433,904
1,489,886	10,878	152,030	112,002	857,884	269,914	1,402,708
1,552,764	21,368	224,979	124,054	905,424	243,578	1,539,403
1,166,958	2,596	43,881	106,344	1,219,680	259,269	1,631,770
1,296,896	3,278	78,135	112,100	1,094,897	234,948	1,522,358
1,167,901	5,800	26,804	93,181	830,154	202,072	1,157,291
1,092,355	1,960	36,770	81,232	881,502	215,686	1,217,150
937,999	524	40,073	93,216	832,397	136,612	1,102,822
1,450,116	536	25,204	52,094	741,934	102,275	922,043
1,400,129	267	22,614	70,353	609,368	37,641	740,243
602,505	4,263	59,402	71,334	766,723	144,076	1,045,798
957,182	1,568	74,651	33,309	682,167	89,998	931,692
744,575	5,080	71,117	66,879	646,803	76,311	866,190
653,027	6,288	101,216	85,525	626,616	73,199	892,844
577,486	2,725	69,106	91,068	777,743	205,234	1,145,876
472,857	833	49,036	88,635	809,187	103,514	1,051,205
557,099	7 9	30,110	100,080	774 538	90,656	996,093
489,053	15	24,077	111,430	567,911	115,983	819,416
512,601	181	21,577	111,955	733,369	101,752	968,834
361,333	40	25,321	109,711	707,340	80,191	922,603
346,200	1,030	26,409	108,801	646,440	62,574	845,254

D.–Table showing the total Tonnage of the undermentioned Articles moved Up and Down

Year.	Vegetable Food.						
	Flour.	Wheat.	Corn.	Barley.	Oats.	Rye	Other Articles. †
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1869*.....	45,674	313,825	126,599	20,951	.....	904	1,937
1872.....	26,651	239,998	254,902	6,035	7,752	64	2,745
1873.....	30,665	355,847	180,169	8,225	1,194	3	3,777
1874.....	24,019	413,212	181,151	18,871	5,954	513	8,677
1875.....	13,964	253,835	103,749	35,751	3,383	917	6,337
1876	15,778	201,906	144,501	18,455	24,496	1,454	3,198
1877.....	13,558	253,953	169,196	19,870	2,810	2,439	2,355
1878.....	9,121	191,982	185,931	10,979	3,088	.....	2,302
1879.....	10,710	274,570	144,506	4,655	1,239	440	2,444
1880.....	12,679	242,020	163,738	17,772	477	1,016	1,480
1881.....	9,959	127,832	101,075	24,509	.....	1,844	2,086
1882.....	12,261	215,056	54,799	20,126	611	3,226	403
1883.....	13,471	152,794	182,269	10,436	731	1,642	10,983
1884.....	13,683	144,851	118,811	7,155	10,746	1,320	9,168
1885.....	13,334	124,206	117,536	15,801	1,116	.....	1,912
1886.....	19,474	154,169	219,442	1,595	4,911	564	14,657
1887.....	23,949	221,927	114,938	9,574	12,050	.....	12,533
1888.....	16,983	160,963	194,886	5,906	26,629	811	13,608
1889.....	7,931	126,664	353,595	4,272	28,356	2,673	18,552
1890.....	14,461	118,002	327,394	10,830	27,728	1,549	20,876
1891.....	13,517	198,658	185,180	8,113	52,959	65,888	28,042
1892.....	17,046	232,019	192,548	6,433	37,173	9,392	32,815
1893...	15,235	258,392	441,092	18,599	31,283	3,671	36,981
1894.....	33,628	270,993	169,233	28,353	27,962	567	60,673
1895.....	44,044	203,088	164,894	8,689	18,236	1,007	46,463
1896.....	42,425	320,563	320,444	11,368	28,178	9,405	56,591
1897.....	9,065	324,743	390,615	14,173	25,161	8,483	44,674
1898.....	5,578	207,647	437,861	12,286	17,502	16,127	23,182
1899.....	11,625	197,732	204,004	2,907	24,037	923	18,460
1900.....	10,968	137,800	163,509	4,035	41,055	3,538	14,815
1901..	18,978	151,586	67,756	7,119	28,485	2,961	14,024
1902..... .	22,282	225,171	67,647	7,418	11,232	4,079	12,963
1903....	25,998	259,031	210,758	14,656	7,911	4,904	13,994
1904.....	35,049	165,138	116,444	27,171	16,582	.....	13,184
1905..	38,512	254,458	180,921	55,432	36,072	1,711	9,883

* Fiscal. † Apples, meal all kinds, pease, potatoes.

through the Welland Canal, during a period of thirty-five years, ended Dec. 31, 1905.

	Heavy Goods.						
Total.	Railway Iron.	Other Iron.	Salt.	Iron and Salt having paid full tolls on St. Lawrence Canals.	Coal.	Ores.	Total.
Tons.	Tons.	Tons.	Tons	Tons.	Tons.	Tons.	Tons.
503,860	68,064	16,924	91,575	37,153	103,126	58,781	275,623
538,147	26,217	17,141	50,540	44,243	186,932	98,605	3,678
579,880	6,923	20,754	40,850	17,157	339,016	118,685	43,387
647,397	6,032	12,068	23,309	9,579	323,503	56,825	431,316
417,936	1,517	7,588	13,509	9,962	321,306	43,683	397,565
409,788	51	7,997	30,300	20,327	288,211	81,654	378,540
464,181	9,630	9,696	9,173	3,983	323,869	42,758	399,109
403,403	10	11,518	3,980	12,686	295,318	15,229	338,741
438,564	2,782	5,797	7,174	17,796	192,957	19,164	245,670
442,182	5,360	4,812	413	22,273	109,986	34,139	176,983
269,395	4,585	7,013	10	30,682	128,113	18,785	189,188
306,482	.....	5,348	50	17,327	237,559	23,700	283,984
373,326	1,237	7,922	66	17,037	307,058	31,785	365,105
305,734	698	652	461	3,242	274,471	53,205	332,729
273,905	78	2,055	597	14,243	248,272	26,728	291,973
414,812	166	6,123	48	12,324	271,356	27,447	317,464
394,971	1,351	5,636	.....	6,715	145,193	13,866	172,761
419,786	93	3,220	316	13,617	223,871	16,872	257,989
542,043	47	2,479	1,254	20,269	268,305	2,435	294,789
519,291	.....	753	1,027	28,047	202,384	8,138	240,349
367,177	127	1,610	2,567	7,953	224,644	3,415	240,316
527,426	163	1,567	878	3,666	211,616	355	218,245
805,253	6	2,075	374	8,139	233,096	....	243,690
591,409	.....	3,072	159	977	203,608	.....	207,816
486,421	185	6,245	54	2,819	158,866	1,140	169,309
788,974	1,192	6,332	82	3,264	223,445	1,158	235,473
816,914	7,206	17,012	227	590	176,226	.....	201,261
720,183	1,444	11,722	799	734	162,336	13,433	190,468
459,688	567	6,361	1,282	1,318	97,732	26,125	133,385
375,720	.....	8,190	533	4,800	47,392	58,400	119,315
290,909	83	6,094	327	8,773	49,480	99.487	164,244
350,792	64	7,488	... .	15,201	64,014	22,480	109,247
537,252	488	5,407	2,554	45,846	147,884	18,323	220,502
373 568	11,381	9,957	1,093	4,164	113,525	39,683	179,803
576,989	2,651	10.912	226	4.221	172,642	22,381	213,033

E.—TABLE showing the tonnages of the undermentioned Articles cleared at Buffalo and Tonawanda, for transit through the Erie Canal, for a series of thirty-seven years.

VEGETABLE FOOD.

Year.	Flour.	Wheat.	Corn.	Barley.	Oats.	Rye.	Other Articles *	Total.	Increase.	Decrease.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.		
1869.	5,609	490,904	219,874	1,978	63,728	2,150	2,193	786,436	.....	.....
1870.	8,258	502,158	165,577	19,944	89,156	10,593	6,906	802,592	2·05	.....
1871.	5,607	570,849	579,709	19,810	106,391	27,622	5,705	1,315,693	67·59	.....
1872.	.....	330,032	866,169	41,515	73,572	5,900	88	1,317,276	67·50	.....
1873.	6	737,167	611,675	8,636	51,615	22,441	634	1,432,174	82·10	.....
1874.	.....	650,161	459,728	3,192	44,079	112	237	1,157,509	47·18	.....
1875.	5,859	695,315	273,006	1,156	36,609	2,242	3,372	1,017,559	29·38	.....
1876.	231	377,317	356,064	6,334	24,488	12,205	4,691	783,331	.....	0·39
1877.	1,710	398,416	709,723	26,351	52,559	27,365	4,976	1,223,100	55·52	.....
1878.	987	775,953	718,714	21,665	69,256	51,064	6,662	1,644,301	109·08	.....
1879.	1,239	892,404	602,171	7,193	14,537	40,471	7,528	1,565,543	99·07	.....
1880.	2,743	897,603	131,857	434	16,154	12,137	4,256	2,065,184	162·06	.....
1881.	1,491	386,605	458,318	86	24,751	107	7,484	878,842	11·75	.....
1882.	1,123	586,019	241,406	1,858	9,046	19,158	6,216	864,826	9·96	.....
1883.	538	535,150	517,219	6,816	47,190	79,010	6,051	1,191,974	51·06	.....
1884.	520	767,784	194,368	4,910	47,060	57,856	4,411	1,078,909	37·18	.....
1885.	323	540,533	356,737	3,317	5,610	6,405	5,427	918,352	14·36	.....
1886.	488	955,851	351,272	6,799	5,180	.....	4,001	1,353,591	72·11	.....
1887.	334	914,152	438,069	15,207	32,907	4,612	44,693	1,449,984	85·64	.....
1888.	534	469,965	494,110	6,589	68,922	10,997	1,717	1,052,834	33·87	.....
1889.	845	457,922	579,526	16,380	61,175	34,167	5,160	1,155,175	46·88	.....
1890.	195	329,531	498,641	58,563	45,202	16,903	4,362	953,397	21·23	.....
1891.	1,071	733,967	137,679	43,779	14,803	66,278	2,594	1,000,171	27·18	.....
1892.	2,485	611,177	141,506	37,570	70,363	3,997	3,472	870,570	10·69	.....
1893.	424	1,086,834	240,767	38,986	21,981	6,156	243	1,395,391	77·43	.....
1894.	327	887,908	265,947	69,707	99,898	5,191	2,123	1,331,101	69·26	.....
1895.	98	271,957	83,611	71,185	85,507	205	15	508,596	.....	35·32
1896.	6,971	402,114	89,726	101,154	194,442	77,162	5,575	877,144	11·53	.....
1897.	1,665	168,870	303,761	88,293	48,591	65,490	11,965	688,635	.....	12 44
1898.	.....	64,760	354,917	85,359	74,336	7,367	20,818	607,557	.....	22·74
1899.	.....	271,848	84,370	72,892	92,919	5,839	.....	527,868	.....	32·89
1900.	62	129,683	184,996	53,472	33,564	10,478	25,621	438,434	.....	44·11
1901.	3	211,317	86,240	45,624	87,357	10,326	32,862	473,729	.....	39·76
1902.	.....	289,207	30,293	50,500	43,162	18,503	5,278	436,943	.....	44·44
1903.	.....	140,508	183,856	47,857	61,060	12,027	510	445,818	.....	43·31
1904.	.....	47,318	57,277	31,507	78,430	1,413	.....	215,945	.....	72·54
1905.	.....	107,281	24,917	78,780	91,418	3,572	1,653	307,621	.....	60·88

* Apples, meal all kinds, pease, potatoes.

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STATEMENT to Table E, showing the shipment at Oswego during the same period.

VEGETABLE FOOD.

Year.	Flour.	Wheat.	Corn.	Barley.	Oats.	Rye.	Other Articles. *	Total.	Increase.	Decrease.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.		
1869	7,361	141,360	28,585	66,794	1,113	8,569	14,033	267,815	..	.. ..
1870	11,440	115,732	10,120	77,906	3,953	7,402	11,628	238,181	...	11·06
1871	10,043	123,173	70,218	72,675	1,806	6,250	13,259	297,424	11·05	.....
1872	4,773	57,865	27,148	62,172	684	6,751	10,425	169,818	.. .	36·59
1873	4,061	53,361	10,578	46,337	670	6,019	10,739	131,765	.....	50·80
1874	.....	108,288	46,127	77,007	1,103	7,053	3,747	243,325	.....	9·14
1875	1,728	32,690	3,034	75,083	3,308	4,989	5,931	126,763	.....	52·67
1876	967	21,890	1,324	63,336	117	5.703	6,638	99,975	.....	62·67
1877	855	28,955	3,308	80,306	316	6,603	6,556	126,899	.....	52·61
1878	1,394	24,171	1,383	50,381	.....	10,598	5,222	93,149	.....	65·21
1879	734	25,740	9,268	71,693	....	16,623	3,110	127,168	.....	52·51
1880	951	17,466	15,656	82,743	.....	12,598	5,996	135,410	.....	49·43
1881	758	25,352	8,064	62,793	206	14,444	4,027	115,638	.....	56·82
1882	813	20,274	4,401	70,862	416	22,265	7,773	126,804	.....	52·65
1883	432	22,634	535	32,557	.....	14,384	1,967	72,507	.....	73·00
1884	404	5,932	413	48,391	.....	12,173	2,819	70,132	.....	73·43
1885	519	6,484	22	45,264	.....	4,613	2,945	59,847	.....	77·62
1886	737	9,579	154	42,261	.....	1,671	4,814	59,216	.. ..	77·88
1887	790	675	2	44,580	.. ...	716	1,370	48,133	.....	82·02
1888	384	2,206	168	6,237	.....	.....	2,196	11,191	.....	95·82
1889	473	8,002	8,950	40,096	16	1,405	1,003	59,945	.....	77·61
1890	545	10,378	10,408	26,639	8	4,635	2,356	54,969	.....	79·47
1891	292	4,298	1,652	27,418	.....	2,130	3,620	39,410	....	85·28
1892	273	4,806	5,657	5,283	... ..	199	2,340	18,558	....	93·07
1893	119	2,036	3,968	8,476	.....	237	2,784	17,620	.....	93·43
1894	8	10,293	10,514	17,160	....	.....	2,609	40,584	.....	84·84
1895	66	3,073	7,352	1,900	1,816	.....	258	14,465	.....	94·23
1896	.....	1,825	7.778	7,552	.....	.....	2,468	19,623	...	93·01
1897	.....	6,588	5,550	7,349	498	219	245	20,449	.....	92·37
1898	160	2,111	5,886	1,450	16	.....	784	10,407	....	96·12
1899	216	3,106	4,478	2,400	.....	.....	2,346	12,546	....	94·61
1900	214	485	1,404	2,400	... .	... .	403	4,906	.....	98·54
1901	245	526	..... .	5,375	.....	.....	120	6,266	.....	97·67
1902	159	.....	.....	3,678	3	.....	632	4,472	.....	98·34
1903	. . ..	.....	....	8,239	.....	.....	570	8,809	.....	96·71
1904	... .	.....	.....	8,477	.....	474	.....	8,951	... ..	96·66
1905	.....	438	.....	.....	3,821	.....	436	4,695	....	98·25

* Apples, meal all kinds, pease, potatoes.

F.—TABLE showing the Total Way and Through Tonnage of the undermentioned Articles cleared downward on the Welland Canal during a series of thirty-five years, ended December 31, 1925.

VEGETABLE FOOD.

Year.	Flour.	Wheat.	Corn.	Barley.	Oats.	Rye.	Other Articles. †	Total.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1869*	44,110	310,090	119,541	3,920	.....	680	1,541	479,882
1872	26,648	231,056	254,534	693	7,594	64	2,300	524,889
1873	30,660	345,720	180,042	643	1,188	3	3,557	563,813
1874	24,017	406,157	181,128	377	5,953	.....	3,301	620,933
1875	13,930	248,555	103,477	813	3,383	500	4,304	374,962
1876	15,735	194,559	144,501	1,110	24,496	1,454	2,949	384,807
1877	13,588	248,894	169,185	10,216	2,810	2,405	1,833	448,931
1878	8,854	188,106	185,931	1,217	3,088	.....	2,100	389,296
1879	10,588	271,545	114,276	803	1,196	.....	2,387	430,795
1880	12,467	240,601	162,891	.....	477	.....	1,418	417,853
1881	9,655	121,393	103,075	252	.....	6	1,371	235,752
1882	12,205	205,876	54,797	537	.....	1,954	225	275,594
1883	13,256	146,741	182,143	975	731	518	10,971	355,335
1884	13,626	135,804	118,811	270	10,746	477	9,018	288,752
1885	13,322	114,090	117,536	618	1,116	.....	1,628	248,310
1886	19,418	146,151	218,897	.....	4,891	.....	14,581	403,928
1887	23,940	210,755	114,938	1,711	12,050	.....	12,149	375,543
1888	16,973	150,833	194,886	555	26,629	811	13,358	404,045
1889	7,922	120,498	353,595	197	28,356	1,918	18,273	530,759
1890	14,461	114,924	327,394	6,519	27,728	1,121	20,836	512,983
1891	13,517	196,326	185,177	8,113	52,959	65,071	27,895	549,058
1892	17,046	229,569	192,548	6,433	37,173	9,392	32,548	524,709
1893	15,232	257,203	441,092	18,461	31,283	3,671	36,981	803,923
1894	33,628	270,514	169,233	28,353	27,962	.....	60,587	590,277
1895	43,895	202,636	164,894	8,689	18,236	.....	46,435	484,785
1896	42,159	319,388	320,444	11,368	28,178	8,970	54,031	784,538
1897	9,025	322,993	390,615	14,173	25,127	8,483	44,651	815,067
1898	5,578	206,313	437,849	12,286	17,491	16,127	23,170	718,814
1899	11,625	197,732	204,004	2,424	23,541	923	18,440	458,689
1900	10,968	137,800	163,509	3,449	40,256	3,538	14,802	374,322
1901	18,937	151,325	67,756	7,119	28,281	2,961	14,021	290,400
1902	22,282	223,499	67,647	7,418	11,223	4,079	12,912	349,060
1903	25,997	257,370	210,758	14,656	7,911	4,904	13,982	535,578
1904	35,046	164,515	116,444	27,171	16,582	.....	13,157	372,915
1905	38,512	247,599	180,921	55,432	36,072	1,711	9,882	570,129

* Fiscal. † Apples, meal all kinds, pease, potatoes.

G.—Table showing the Tonnage of the undermentioned Articles passed through the Welland Canal in transit between Ports in the United States during a series of thirty-five years, ended December 31, 1905.

Years.	Vegetable Food.								Heavy Goods.					
	Flour.	Wheat.	Corn.	Barley.	Oats.	Rye.	*Other articles.	Total.	Railway Iron.	Other Iron.	Salt.	Coal.	Ores.	Total.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1869	30,681	211,085	91,149	2,942	.....	667	1,006	337,530	68,064	14,334	89,086	28,566	35,912	235,962
1872	10,482	124,695	89,761	1,391	7,400	.....	608	234,337	24,040	13,239	49,843	95,741	59,401	224,264
1873	10,805	127,727	101,329	1,920	1,188	3	392	243,366	4,659	13,826	40,507	170,242	62,942	292,176
1874	8,230	229,053	125,627	.....	5,948	.....	5,368	374,226	5,742	8,941	22,888	203,673	19,651	260,895
1875	1,881	113,832	54,188	2,641	2,946	500	1,920	177,908	14	4,123	12,931	192,767	34,616	244,451
1876	5,187	96,247	58,138	.....	1,905	525	403	162,405	.....	5,531	29,395	167,110	25,808	227,844
1877	3,342	107,396	65,260	1,603	2,314	258	413	180,586	8,976	8,688	8,336	172,868	41,107	239,975
1878	1,316	65,542	60,026	859	277	.....	341	128,361	.....	10,713	3,892	150,583	13,535	178,723
1879	159	53,791	33,401	.....	464	.....	11	87,826	2,405	3,648	6,318	118,573	17,797	148,741
1880	.....	30,611	16,122	1,551	296	.....	.....	48,580	4,743	3,515	371	65,945	18,380	92,954
1881	.....	34,320	30,031	924	.....	.....	10	65,285	1,313	5,570	.....	83,858	6,464	97,205
1882	107	30,227	32,433	537	.....	684	14	64,002	.....	4,076	.....	158,552	14,533	177,161
1883	2,041	54,382	66,128	735	731	.....	8,579	132,496	1,209	6,901	8	196,462	24,891	229,471
1884	1,715	40,956	53,707	.....	9,874	.....	8,170	114,422	698	599	.....	210,790	15,100	227,187
1885	124	53,235	63,229	732	882	.....	1	118,203	.....	1,594	.....	198,416	15,029	215,039
1886	7,591	53,258	94,048	.....	4,790	.....	13,201	172,888	156	5,328	1	189,964	11,364	206,813
1887	11,780	37,678	83,431	1,732	12,050	.....	10,859	157,530	15	4,406	.....	82,780	627	87,828
1888	8,563	39,999	102,974	2	26,510	179	11,598	189,825	63	1,601	56	173,259	2,309	177,288
1889	5,017	39,229	147,045	.....	27,492	.....	17,225	236,208	.....	1,587	896	227,476	1,204	231,163
1890	9,204	31,527	180,842	6,519	27,030	.....	20,497	275,619	.....	504	208	162,231	1,620	164,563
1891	6,802	32,097	127,494	8,113	52,823	.....	26,115	253,444	.....	292	705	186,572	1,773	189,342
1892	11,018	26,950	131,222	6,433	36,935	.....	31,992	244,550	.....	576	2	183,895	.....	184,473
1893	6,588	28,187	198,777	16,751	23,870	864	36,352	311,389	.....	344	.....	206,827	.....	207,171
1894	17,795	53,846	105,329	28,095	27,621	.....	60,462	198,358	.....	297	.....	188,521	.....	188,818
1895	10,169	27,881	100,512	7,904	17,020	.....	46,316	209,802	181	246	.....	149,490	.....	149,917
1896	16,224	34,878	175,094	11,128	16,137	490	46,456	300,407	.....	146	.....	207,348	.....	207,494
1897	7,237	28,919	169,057	14,173	14,969	.....	41,887	276,242	965	15	.....	165,143	.....	166,123
1898	4,212	11,268	150,667	6,909	12,732	1,197	22,671	209,656	770	339	4	156,814	.....	157,927
1899	6,118	12,926	81,777	2,424	19,526	923	18,198	141,892	351	1,646	553	88,931	.....	91,481
1900	7,966	18,771	60,545	2,402	39,706	2,149	14,248	145,787	.....	953	.....	46,024	.....	46,977
1901	17,165	23,557	55,531	7,119	26,344	.....	14,016	143,732	83	80	105	46,702	.....	46,970
1902	13,785	32,639	66,111	7,418	10,006	.....	12,675	142,634	.....	214	.....	12,911	.....	13,125
1903	6,082	15,439	108,917	11,433	6,112	4,174	13,568	165,725	459	.....	.....	113,072	.....	113,535
1904	8,556	14,269	60,964	16,621	16,497	.....	13,079	129,986	.....	.....	.....	63,882	.....	63,882
1905	24,054	15,483	93,622	9,197	10,892	.....	9,682	162,930	.....	1	.....	73,464	22,381	95,846

* Apples, meal all kinds, pease, potatoes.

H.—Table showing the Tonnage of Vegetable Food carried on each of the Lines of Canals and the two principal Railways, competing for the Carrying Trade between Lake Erie and Tidewater, for a series of thirty-five years, ended December 31, 1905.

Year.	Total on New York Canals.	Total on Welland Canal.	Total on New York Central and Erie Railways.	Quantity cleared at Buffalo and Tonawanda by Erie Canal.	Quantity cleared at Oswego by Canal.	Quantity cleared through the Welland Canal in transit between ports in the United States.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
1869*	1,302,613	503,860	1,087,809	786,436	267,815	337,530
1872	1,674,320	538,147	1,870,614	1,317,276	169,818	234,337
1873	1,745,171	579,880	2,036,992	1,432,174	131,765	243,366
1874	1,767,598	647,397	2,791,517	1,557,509	243,325	374,226
1875	1,305,550	417,936	2,343,241	1,017,559	126,763	177,968
1876	1,064,293	409,788	2,875,803	783,331	99,975	162,405
1877	1,498,984	464,181	2,493,683	1,223,100	126,899	180,586
1878	1,912,734	403,403	3,695,764	1,644,301	93,149	128,361
1879	1,833,399	438,564	4,353,617	1,565,543	127,168	87,826
1880	2,371,090	442,182	4,732,385	2,065,184	135,410	48,580
1881	1,116,561	269,395	4,983,722	878,842	115,638	65,285
1882	1,118,776	306,482	3,885,557	864,826	126,804	64,002
1883	1,379,000	372,236	4,422,461	1,191,974	72,507	132,496
1884	1,236,986	305,734	3,639,805	1,078,909	70,132	114,422
1885	1,063,310	273,905	4,105,594	918,352	59,847	118,203
1886	1,489,886	414,812	3,802,262	1,353,591	59,216	172,888
1887	1,552,764	394,971	3,847,766	1,449,984	48,133	157,530
1888	1,166,958	419,786	3,197,734	1,052,834	11,191	189,825
1889	1,296,896	542,043	3,654,984	1,155,175	59,945	236,208
1890	1,167,901	519,291	4,336,199	953,397	54,969	275,619
1891	1,092,355	367,177	3,565,381	1,000,171	39,410	253,444
1892	937,999	527,426	5,913,013	870,570	18,558	244,550
1893	1,452,563	805,253	5,107,426	1,395,391	17,620	311,389
1894	1,400,129	591,409	4,281,056	1,331,101	40 584	293,148
1895	602,505	486,421	3,798,574	508,596	14,465	209,802
1896	957,182	788,974	5,183,540	877,144	19,623	300,407
1897	744,575	816,914	5,673,638	688,635	20,449	276,242
1898	653,927	720,183	7,060,542	607,557	10,407	209,656
1899	577,486	459,688	6,211,827	527,868	12,546	141,892
1900	472,857	375,720	6,053,005	438,434	4,906	145,787
1991	557,099	290,909	6,334,001	473,729	6,266	143,732
1902	489,053	350,792	6,532,263	436,943	4,472	142,634
1903	512,601	537,252	5,548,603	445,518	8,869	165,725
1904	361,333	373,568	4,632,082	215,945	8,951	129,986
1905	346,200	561,080	4,475,888	307,621	4,695	162,930

* Fiscal.

SESSIONAL PAPER No. 20a

1.—STATEMENT showing the Quantity of Through Freight passed DOWN the Welland Canal in Canadian and United States Vessels entering the Canal at Port Colborne, during the Season of Navigation in 1894, 1895, 1896, 1897, 1898, 1899, 1900, 1901, 1902, 1903, 1904 and 1905.

ARTICLES.	CANADIAN VESSELS.				AMERICAN VESSELS.				TOTAL.	
	Steam.		Sail.		Steam.		Sail.		Steam and Sail	
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.
	199	104,649	112	57,668	287	279,621	144	63,770	742	505,708
1894.	Tons.		Tons.		Tons.		Tons.		Tons.	
Wheat		98,586		54,444		79,715		37,095		268,840
Corn		10,368		5,614		122,211		31,040		169,233
Barley		258				28,095				28,353
Oats		175		107		27,621				27,903
Peas										
Rye										
Coal		1,483		1,892		61		11,109		14,545
Miscellaneous merchandise		16,949		664		83,198		1,977		102,788
Shingles, woodenware, &c		22								22
Sawed lumber.....Ft. B.M.		8,423,295		279,830		11,719,664		31,891,456		52,313,745
Square timber.....Cub. ft.		771,328		1,578,981						2,35 ,309
Staves.....No.										
Firewood.....Cords										
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage
	209	108,776	151	73,895	205	223,743	101	41,327	666	447,741
1895.	Tons.		Tons.		Tons.		Tons.		Tons.	
Wheat		72,895		68,935		29,345		39,723		201,898
Corn		16,854		3,724		126,943		17,369		164,890
Barley		798		162		7,729				8,689
Oats		1,531		246		16,442				18,219
Peas										
Rye										
Coal		2		3,984				4,426		8,412
Miscellaneous merchandise		37,356		2,361		67,705		1,324		108,746
Shingles, woodenware, &c		20				863		1,079		1,962
Sawed lumber.....Ft. B.M.		1,057,146		248,071		9,385,890		14,929,734		25,620,841
Square timber.....Cub. ft.		1,027,913		2,049,368				35,000		3,112,281
Staves.....No.										
Firewood.....Cords										
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.
	224	122,521	181	82,543	343	337,983	163	96,506	911	639,553
1896.	Tons.		Tons.		Tons.		Tons.		Tons.	
Wheat		113,331		90,979		78,741		34,476		317,527
Corn		9,360		3,855		218,315		88,914		320,440
Barley		240				11,128				11,368
Oats		441		1,270		24,847		1,620		28,178
Peas		1,403		1,354				273		3,030
Rye		5,035		644		2,837		454		8,970
Coal		7		11,106		1,255		629		11,997
Miscellaneous merchandise		29,820		1,452		82,319		4,374		117,965
Shingles, woodenware, &c		134				22				156
Sawed lumber.....Ft. B.M.		2,123,213				18,259,810		27,796,146		48,179,169
Square timber.....Cub. ft.		942,923		1,649,145				246,024		2,838,092
Staves.....No.										
Firewood.....Cords								55		55

I.—STATEMENT showing the Quantity of Through Freight passed DOWN the Welland Ganal in Canadian and United States Vessels, &c.—*Continued.*

ARTICLES.	CANADIAN VESSELS.				AMERICAN VESSELS.				TOTAL.	
	Steam.		Sail.		Steam.		Sail.		Steam and Sail	
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.
	225	131,907	163	76,760	388	382,231	144	86,675	920	677,573
1897.	Tons.		Tons.		Tons.		Tons.		Tons.	
Wheat	121,762		55,724		106,064		37,891		321,441	
Corn	33,694		15,244		274,855		66,822		390,615	
Barley					14,173				14,173	
Oats	223				23,515		1,168		24,906	
Peas	1,851								1,851	
Rye	2,047		919		5,517				8,483	
Coal	3,873		3,947		368		1,615		9,803	
Miscellaneous merchandise	15,739		3,290		70,968		4,174		94,071	
Shingles, woodenware, &c	1,268		5		404				1,677	
Sawed lumber Ft. B.M.	1,573,447				20,284,446		20,672,202		42,531,095	
Square timber Cub. ft.	1,327,823		2,217,629				616,093		4,161,545	
Staves No.	2,577,160								2,577,160	
Firewood Cords.	4								4	
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.
	216	126,398	104	59,532	354	355,702	195	108,720	869	650,352
1898.	Tons.		Tons.		Tons.		Tons.		Tons.	
Wheat	95,567		36,157		54,934		18,355		205,013	
Corn	56,538		30,455		284,059		66,761		437,813	
Barley					9,465		2,821		12,286	
Oats					17,329				17,329	
Peas	260				45				305	
Rye	3,564		1,480		9,135		1,948		16,127	
Coal	575		1,916		759		2,620		5,870	
Miscellaneous merchandise	19,385		4,104		47,271		8,758		79,518	
Shingles, woodenware, &c	2		9						11	
Sawed lumber Ft. B.M.	4,910,669		1,641,783		16,220,972		24,484,283		47,257,707	
Square timber Cub. ft.	825,545		1,183,821				388,410		2,397,776	
Firewood Cords.										
Staves No.	249								249	
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.
	191	100,242	129	75,777	201	212,027	78	36,962	599	425,008
1899.	Tons.		Tons.		Tons.		Tons.		Tons.	
Wheat	91,901		80,928		16,250		7,244		196,323	
Corn	28,015		18,905		138,834		18,250		204,004	
Barley					2,424				2,424	
Oats	1,557				21,646				23,203	
Peas										
Rye					923				923	
Coal	435		6,736				3,398		10,569	
Miscellaneous merchandise	25,203		18,651		49,522		1,567		94,943	
Shingles, woodenware, &c	485		916				100		1,501	
Sawed lumber Ft. B.M.	2,077,748		772,739		14,855,338		19,949,079		37,654,904	
Square timber Cub. ft.	322,138		585,780		20,802		328,806		1,257,526	
Firewood Cords.			9						9	
Staves No.										

1.—STATEMENT showing the Quantity of Through Freight passed DOWN the Welland Canal in Canadian and United States Vessels, &c.—*Concluded.*

ARTICLES.	CANADIAN VESSELS.				AMERICAN VESSELS.				TOTAL.	
	Steam.		Sail.		Steam.		Sail.		Steam and Sail	
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.
	216	114,885	109	67,475	168	182,444	71	30,309	564	395,113
1900.	Tons.		Tons.		Tons.		Tons.		Tons.	
Wheat		67,694		43,157		23,066		2,130		136,047
Corn		39,597		31,248		78,701		13,963		163,509
Barley						2,402		1,047		3,449
Oats						39,706		407		40,113
Peas		115				4				119
Rye		1,389				2,149				3,538
Coal		723		637		433		559		2,352
Miscellaneous merchandise		53,649		31,536		43,344		3,564		132,093
Shingles, woodenware, &c		1,078								1,078
Sawed lumber. Ft. B.M.		6,847,279		5,344,258		14,984,483		18,770,405		45,946,425
Square timber. Cub. ft.		439,827		355,951		11,583		198,420		1,005,781
Firewood. Cords.		126		255						381
Staves. No.		1,000								1,000
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.
	197	103,802	114	59,022	163	182,497	48	22,319	522	367,640
1901.	Tons.		Tons.		Tons.		Tons.		Tons.	
Wheat		57,641		58,973		31,955		1,241		149,810
Corn		7,350		4,689		55,717				67,756
Barley						7,119				7,119
Oats		944				27,197				28,141
Peas										
Rye		2,961								2,961
Coal		1,960		362		357				2,679
Miscellaneous merchandise		71,300		32,312		12,874		7,469		123,955
Shingles, woodenware, &c		18								18
Sawed lumber. Ft. F.M.		6,533,423		4,060,251		11,089,806		13,092,940		34,776,420
Square timber. Cub. ft.		362,441		204,682		9,384		149,531		726,038
Firewood. Cords.		165		264						429
Staves. No.										
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.
	196	90,791	122	73,958	191	201,339	52	22,097	561	388,185
1902.	Tons.		Tons.		Tons.		Tons.		Tons.	
Wheat		82,954		85,973		52,889				221,816
Corn		148		1,388		66,111				67,647
Barley						7,418				7,418
Oats		1,200		43		9,963				11,206
Peas										
Rye		3,808				271				4,079
Coal		3,977		25,732		13,497		8,332		51,538
Merchandise		33,111		8,723		38,351		1,594		81,779
Shingles, woodenware, &c		47		28		4				79
Sawed lumber. Ft. B.M.		13,218,960		3,256,187		25,437,287		19,540,426		61,452,860
Square timber. Cub. ft.		370,718		557,689				115,000		1,043,407
Firewood. Cords.		56		40						96
Staves. No.				14,000						14,000

I.—STATEMENT showing the Quantity of Through Freight passed Down the Welland Canal in Canadian and United States Vessels, &c.—*Concluded.*

ARTICLES.	CANADIAN VESSELS.				AMERICAN VESSELS.				TOTAL.	
	Steam.		Sail.		Steam.		Sail.		Steam and Sail	
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.
	239	151,850	76	45,918	243	252,094	69	27,854	627	477,716
1903.	Tons.		Tons.		Tons.		Tons.		Tons.	
Wheat		149,378		38,473		60,514		6,305		254,670
Corn		21,356		4,682		174,588		10,132		210,758
Barley		2,580		667		11,409				14,656
Oats		306		1,335		6,112				7,753
Peas		63				22				85
Rye						4,904				4,904
Coal		389		12,991		8,133		8,496		30,009
Merchandise		39,563		3,367		41,584		2,000		86,514
Shingles, woodenware, &c				54						54
Sawed lumber.....Ft. B.M.		12,841,552		1,625,855		17,871,652		14,733,677		47,072,736
Square timber.....Cub. ft.		572,000		660,000				84,200		1,316,200
Firewood..... Cords				210		9				219
Staves.....No.				641,000						641,000
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.
	228	157,539	55	39,375	205	187,748	42	15,918	530	400,580
1904.	Tons.		Tons.		Tons.		Tons.		Tons.	
Wheat		116,794		33,302		14,269				164,365
Corn		12,768		7,814		95,362				116,444
Barley		2,619		824		23,728				27,171
Oats						16,261				16,261
Peas						3				3
Rye										
Coal		1,925		7,187		17,133		7,668		33,913
Iron ore		34,907				1,925				36,832
Merchandise		29,567				60,548				90,115
Shingles, woodenware, &c										
Sawed lumber.....Ft. B.M.		15,077,382		854,811		32,754,541		9,572,655		58,259,389
Square timber.....Cnb. ft.		944,508		744,000				149,000		1,837,508
Firewood.....Cords.						717				717
Staves.....No.		634,000								634,000
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage	No.	Tonnage.	No.	Tonnage.
	252	182,373	91	48,692	319	286,656	64	29,120	726	546,841
1905.	Tons.		Tons.		Tons.		Tons.		Tons.	
Wheat		188,706		18,575		28,757		2,512		238,550
Corn		6,385		6,636		163,374		4,526		180,921
Barley		6,870		1,451		47,111				55,432
Oats		8,225		2,570		21,535		3,742		36,072
Peas						76				76
Rye						1,711				1,711
Coal		18,756		35,324		28,330		8,678		91,088
Iron ore		14,358		8,023						22,381
Merchandise		29,375		7,485		74,975		3,126		114,961
Shingles, woodenware, &c				2,748,941		2,325				2,325
Sawed lumber.....Ft. B.M.		2,867,147				38,290,831		12,479,698		54,589,200
Square timber.....Cub. ft.		355,000		951,524						538,000
Firewood..... Cords.				183,000		900				900

WELLAND CANAL THROUGH FREIGHT—RECAPITULATION.

Welland Canal—West Bound Freight.

The total Quantity of Through Freight passed Up the Welland Canal in Canadian and United States Vessels during the Season of Navigation in 1905, is as follows:—

Summary.	Tons.	Tons.
In Canadian steam vessels	68,083	
" sail "	17,168	
Total quantity in Canadian vessels		85,251
In United States steam vessels	136,598	
" sail "	6,112	
Total in United States vessels		142,710
Grand total freight passed Up the Welland Canal in Canadian and United States vessels		227,961

STATEMENT of the Quantity of Through Freight passed Up and Down the Welland Canal during the Season of Navigation in 1905.

Summary.	Tons.	Tons.
In Canadian steam vessels up	68,083	
" " down	284,556	
Total in Canadian steam vessels		352,639
In Canadian sail vessels up	17,168	
" " down	85,310	
Total in Canadian sail vessels		102,478
Total quantity in Canadian vessels		455,117
In United States steam vessels up	136,598	
" " down	434,747	
Total in United States steam vessels		571,345
In United States sail vessels up	6,112	
" " down	43,394	
Total in United States sail vessels		49,506
Total quantity in United States vessels		620,851
Total in Canadian and United States vessels		1,075,968
	Down or East Bound.	Up or West Bound
In Canadian vessels	369,866	85,251
In United States vessels	478,141	142,710
Total	848,007	227,961

K.—Statement showing the Quantity of Freight passed Eastward, from Lake Erie, through the whole length of the Welland and St. Lawrence Canals, to Montreal, during the seasons of navigation in 1893, 1894, 1895, 1896, 1897, 1898, 1899, 1900, 1901, 1902, 1903, 1904 and 1905.

Articles.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Class 3.													
Cement and water lime				12								35	
Clay, lime and sand					38	52	15	15					22
Iron, railway										50		8,170	10
" pig		195	79	5				508					
" all other		1	1,766	2,020	7,564	6,217	5,063	4,292	1,178	5,785	2,542	1,651	384
Steel			394	542	375	1,351	3,000	5,420				16	48
Stone, for cutting				200									
Apples		50	28	1,263								1	
Barley	600	258	959	240		3,960	596	1,288			2,206	9,697	43,607
Corn	278,564	60,661	70,235	182,330	267,583	310,498	150,999	109,359	14,319	1,719	123,864	55,021	84,204
Flaxseed					3,293	5,687			4,965		3,643	212	15,694
Flour	5,514	16,503	30,916	11,964	1,029	653	4,229	1,595	1,400	6,755	16,151	24,662	14,571
Meal, all kinds		4	65						35		348	57	270
Oats	9,761	175	1,654	12,373	6,847	3,975	10,250	8,925	1,584	1,442	2,438		21,404
Oil cake									1,083		462	7,846	9,229
Pease				3,020	2,078	260		115			63		
Rye	3,669			8,323	8,435	15,488	923	3,078	2,961	4,079	4,260		1,711
Salt					216	144	183		50		132	615	168
Seeds, all kinds				20			200						
Hay, pressed							96		246				
Tobacco, raw					51				23				
Wheat	209,212	212,557	158,643	255,198	278,498	184,154	169,978	121,896	132,702	200,975	226,746	133,528	190,505
All other agricultural products, vegetables		29		29		56	32						
Hides, skins, horns and hoofs												10	
Horses	1	1	1	1	1	4	1						
Lard and lard oil									1,155				2,847
Meats, all kinds									114				
Pork		717		1					34				
Tallow											3		53
All other agricultural products, animal												1	
Total, class 3	507,321	201,151	264,740	477,541	576,008	532,499	345,565	256,491	161,849	220,805	382,858	241,522	384,727
Class 4.													
Agricultural implements							3		1,785	13	58	17	
Ashes	23	19	34	94	133	73	55	25	3		2	16	

K.—STATEMENT showing the Quantity of Freight passed Eastward, from Lake Erie, through the whole length of the Welland and St. Lawrence Canals, to Montreal, &c.—*Concluded.*

Articles.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.
	Tons.	Tons	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons	Tons.	Tons.
Class 4—Con.													
Crockery				5									93
Furniture		2			1		1	1	5		3	6	
Glass, all kinds				9	53	75	16	6	1		15	3	21
Molasses			100	167	9	56	159			54	240		820
Nails							1				19		64
Oil			6	23	112	1,141	7,143	15,647	14,987	12,091	14,619	12,848	20,700
Paint			2						17		5		
Pitch and tar													53
Rags				4							4		
Rosin											20		
Soda ash									4				59
Sugar				1					112				2,019
Stone, wrought													
Tin												87	53
Tobacco							96						204
White lead								16					
Whisky, beer and other spirits	1		101		46	4	74	11	32		2	766	635
Merchandise not enumerated	4	330	558	376	1,226	866	518	92	2,420	419	582	713	851
Total, class 4	28	351	801	679	1,580	2,215	7,969	15,798	19,366	12,577	15,569	14,456	25,572
Class 5.													
Barrels, empty			1				1	182	66	15			
Hoops					257								
Sawed lumber	667	683	1,117	657	478	3,065	924	15,760	2,635	1,085			3,957
Staves, pipe and barrel					4,716							394	
" West India and pipe													
Timber, square, in vessels												1,544	1,260
" in rafts				1,200	1,207	329	26						
Woodenware		6								17			
Total, class 5	667	689	1,118	1,857	6,658	3,394	951	15,942	3,205	1,117		1,938	5,217
Special Class.													
Coal													29,351
Iron ore										15,976		17,362	3,837
Total special classs													33,188
Grand total	508,016	292,191	266,659	480,077	584,246	538,108	354,485	28,231	184,420	250,475	398,427	275,278	448,704

L.—STATEMENT showing the Quantity of Freight passed Westward from Montreal, through the whole length of the St. Lawrence and Welland Canal to Lake Erie, during the Seasons of Navigation in 1893, 1894, 1895, 1896, 1897, 1898, 1899, 1900, 1901, 1902, 1903, 1904 and 1905.

Articles.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Class 3.													
Bricks		1	24	15	70	70	24	49	196	22	80	115	132
Brimstone									5	20	23	12	
Cement and water lime	3,169	2,281	1,859	1,686	837	996	997	1,931	2,916	178	3,924	39	181
Clay, lime and sand		253			4	144	8	4	2	1	181		
Cotton, raw											23		
Fish	465	512		11	10	9	10	8	8		8	4	
Gypsum							4						
Iron, railway	6,576	20		1,687				74	748	11,735	39,641	283	126
" pig	25		56	28	6			3		558	273		312
" all other	543	114	1,831	727	559	699	1,318	1,428	4,950	2,904	5,845	3,782	3,633
Salt	995	843	932	822	25	35		48	75	4	87	99	150
Steel	426	248	528			19	18		3	11	332	58	192
Stone for cutting				4	62							41	
Flour	3								16				18
Hay			124										
Meals		15									17	25	
Oats													
Potatoes													
Seeds, all kinds		33	25	99	121	56	121	218	302	58	325	164	35
Tobacco, raw										1	2		
Agricultural products not enumerated, vegetables		5	26		4				1	1			127
Hides and skins			26							16	6		
Horses				1		1							
Lard and lard oil			1			2				11			28
Meats other than pork											1	25	
Pork								1					
Wool													
All other articles not enumerated		10											
Total, class 3	12,202	4,335	5,432	5,080	1,698	2,031	2,500	3,764	9,222	15,520	50,768	4,647	4,934
Class 4.													
Ashes, pot and pearl					1						2		
Crockery and earthenware	98	107	12	83	4	33	3	5			32	291	155
Dye woods, &c.												2	
Furniture					2			1			1	5	2

L.—STATEMENT showing the Quantity of Freight passed Westward from Montreal, through the whole length of the St. Lawrence and Welland Canal to Lake Erie, &c.—*Concluded.*

Articles.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Class 4—Con.													
Glass, all kinds	365	175	394	612	799	150	299	456	612	1,384	1,207	1,671	1,641
Manilla		11										34	93
Molasses	43	42	20	1					1		6		1
Nails	472	500	1,149	409	129	229	518	30	675	1,292	2,878	2,009	3,061
Oil, in barrels	44	8	31	33	12	15	21	74	83	14	16	1,418	120
Paint	70	8	75	49	20	35	2	12	69	97	158	202	367
Pitch and tar	26	152	67	60	20	37	6	21	27	27	58	199	5
Rags							14			1	29		15
Resin							15				1		
Soda ash	68	94	84	74	249	88	108	69	169	201	264	387	28
Stone, wrought	14			17	25	31							
Sugar	2,218	2,724	1,430	1,873	311	566	1,596	430	810	1,314	204	52	1,168
Tin	34	327	396	395	359	237	159	117	338	506	209	362	928
Turpentine									1	2	1		
White lead	35	2	7	10	5		1	4	11	37	80	82	80
Whiting	31	1	113	56	104	93	89	39	49	61	22	33	158
Whisky, beer, &c	26	53	77	51	93	98	178	295	131	182	452	432	384
Merchandise not enumerated	799	900	1,268	1,247	711	793	482	744	1,516	1,049	3,674	6,200	15,360
Total, class 4	4,343	5,104	5,123	4,970	2,844	2,405	3,491	2,447	4,492	6,169	9,294	13,379	23,566
Class 5.													
Barrels, empty													
Firewood in vessels										3,600	40,026	40,425	43,982
Lumber, sawn, in vessels													
Railway ties in vessels											611		
Woodenware													
Total, class 5										3,600	40,637	40,425	43,982
Special Class.													
Coal												10,200	
Iron ore												2,861	
Total, special class												13,061	
Grand total	16,545	9,439	10,555	10,050	4,542	4,436	5,991	6,211	13,714	25,289	100,699	71,512	72,482

M.—Statement showing the Quantity of Freight passed Eastward through the Welland Canal, from United States Ports to United States Ports, during the Season of Navigation from 1893 to 1905 inclusive.

Articles.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905.
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Class 3.													
Bricks					845								
Cement and water line						300		18					
Fish	5	5											
Iron, railway			181		965	770							
" all other	102		214			324	1,008	714		30			1
Salt							549		105				
Steel				498		2,951	13,522	3,110					
Stone for cutting													
Apples													
Barley	16,751	28,095	7,904	11,128	14,173	6,909	2,424	2,462	7,119	7,418	11,433	16,621	9,197
Corn	198,777	105,329	100,512	175,094	169,057	150,667	81,777	60,545	55,531	66,111	108,917	60,964	93,622
Flour	6,588	17,795	10,169	16,224	7,237	4,212	6,118	7,966	17,168	13,785	6,082	8,556	24,054
Hay, pressed					301								200
Meal, all kinds	36,352	60,390	46,316	46,456	41,644	22,626	18,198	14,244	14,016	12,675	13,546	13,076	9,606
Marble													87
Nails													1
Oil cake		29						2,705	1,302	110	740	16,497	228
Oats	23,870	27,621	16,442	16,137	14,969	12,729	19,526	39,706	26,344	10,006	6,112	3	10,892
Pease						45		4			22		76
Potatoes													
Rye	864			490		1,197	923	2,149			4,174		
Flaxseed							200				1,594		
Seeds, all kinds	16		14	78	299	44	11			10	27		43
Tobacco									23				
Wheat	28,187	53,846	27,881	34,878	28,919	11,268	12,926	18,771	23,557	32,639	15,436	14,269	15,483
Agricultural products, vegetables								6	10		1		
Hides and skins, &c			8	41	23								
Horses	2	4		3	3	2		4			2		
Lard and lard oil, &c	1		6	1,348	1,444	3,671	864	1,588	1,680	2,413			
Meats, other than pork			30										
Pork	52	56	87	390	243	1,271	343	17	970	632	152	379	273
Sheep													
Tallow						359	201	631	119				
Wool	80	1,484	1,536	900	197	89	130		3	752	482	134	21
Total, class 3	311,647	294,654	211,300	303,665	280,319	219,434	158,720	154,680	147,947	146,581	168,720	130,499	163,784
Class 4.													
Agricultural implements										399		396	552
Crockery and earthenware													
Furniture			2			2	7		3	17			

M.—STATEMENT showing the Quantity of Freight passed Eastward through the Welland Canal, from United States Ports to United States Ports, during the Season of Navigation from 1893 to 1905 inclusive—*Concluded.*

Articles.	1893.	1894.	1895.	1896.	1897.	1898.	1899.	1900.	1901.	1902.	1903.	1904.	1905
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Class 4—Con.													
Glass, all kinds													
Marble									4				
Molasses							8	57					
Nails		57					11						
Oil, in barrels			30	1,005	198	119	367	17	22	1,594	2,000	1	
Paint						3	2	36				17	42
Rags							1				4		4
Soda ash													
Stone, wrought													
Sugar			59	165	31			154	448	280		53	53
White lead													7
Whisky, beer and all other spirits	83		15			34	168	1	1		3		
Merchandise	1,693	2,976	7,656	3,990	3,591	3,828	6,219	7,889	3,327	1,928	2,010	1,554	2,008
Total, class 4	1,782	3,033	7,762	5,160	3,820	3,986	6,783	8,164	3,805	4,218	4,017	2,021	2,666
Class 5.													
Empty barrels	9			10				5	282				3
Firewood, in vessels				165						4		717	2,700
Lumber, sawn, in vessels	68,985	62,905	41,974	75,515	68,280	52,844	57,695	55,128	38,685	72,806	48,337	30,194	15,726
Masts and spars, in vessels					403								
Hop poles												154	
Railway ties, in vessels			446									652	2,248
Shingles	13												62
Split posts													12
Timber, square, in vessels			500		1,040								
Woodenware, &c				12	1								
Total, class 5	69,907	62,905	42,920	75,702	69,724	52,844	57,695	55,133	38,367	72,810	48,337	31,717	20,751
Special Class.													
Coal	2,123	727	603	1,255		759	2,293	992	357	501		1,100	3,346
Stone, not suitable for cutting													
Kryolite													
Total, special class	2,123	727	603	1,255		759	2,293	992	357	501		1,100	3,346
Grand total	384,559	361,319	262,585	385,782	353,863	277,023	225,491	218,969	190,476	224,110	221,074	165,337	190,547

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N.—STATEMENT showing the Number of Vessels which took their Cargoes of Wheat through the Welland Canal from Ports west of Port Colborne, the quantity transhipped at Kingston, and the quantity of each cargo through the St. Lawrence Canals to Montreal, during the Season of Navigation in 1905.

Names of Vessels.	Original Quantity through the Welland Canal.	Quantity Transhipped at Kingston.	Cargo through the St. Lawrence Canals to Montreal.
	Tons.	Tons.	Tons.
Canadian steamer Advance	940		940
" " "	1,085	510	575
" " "	1,125		1,125
" " "	1,140		1,140
" " "	1,110		1,110
" " "	1,113		1,113
" " A. E. Ames	1,500		1,500
" " "	1,515		1,515
" " "	1,500		1,500
" " "	1,470		1,470
" " "	1,500		1,500
" " "	1,470		1,470
" " "	1,530		1,530
" " "	1,545		1,545
" " "	633		633
" " Arabian	1,124		1,124
" " "	1,141		1,141
" " "	1,155		1,155
" " "	1,161		1,161
" " "	1,161		1,161
" " "	1,200		1,200
" " "	1,200		1,200
" " "	1,170		1,170
" " Golspic	824		824
" " Haddington	2,218		2,218
" " "	2,227		2,227
" " "	2,226		2,226
" " "	2,154		2,154
" " "	2,005		2,005
" " "	2,207		2,207
" " "	2,205		2,205
" " Neepawah	1,830		1,830
" " "	1,740		1,740
" " "	1,710		1,710
" " "	1,680		1,680
" " "	1,710		1,710
" " "	1,779		1,779
" " "	1,680		1,680
" " H. M. Pellatt	1,350		1,350
" " "	1,455		1,455
" " "	1,425		1,425
" " "	1,425		1,425
" " "	1,425		1,425
" " "	1,425		1,425
" " "	1,425		1,425
" " J. H. Plummer	1,500		1,500
" " "	1,530		1,530
" " "	1,394		1,394
" " "	1,479		1,479
" " "	1,562		1,562
" " "	1,440		1,440
" " "	1,575		1,575
" " "	1,500		1,500
" " "	1,470		1,470
" " "	1,425		1,425
" " Wahcondah	1,503		1,503
" " "	1,372		1,372
" " "	1,500		1,500
" " "	1,419		1,419
" " "	1,548		1,548
" " "	467		467
" " "	1,560		1,560

N.—STATEMENT showing the Number of Vessels which took their Cargoes of Wheat through the Welland Canal from Ports west of Port Colborne, &c.—*Concluded.*

Names of Vessels.	Original Quantity through the Welland Canal.	Quantity Transhipded at Kingston.	Cargs through the St. Lawrence Canals to Montreal.
	Tons.	Tons.	Tons.
Canadian steamer Wahcondah	1,614		1,614
" barge Selkirk	1,339		1,339
" " Winnipeg	1,380		1,380
United States steamer J. Crearer	1,110		1,110
" " H. G. Dalton	744		744
" " G. C. Howe	659		659
" " J. S. Keefe	720		720
" " "	1,140		1,140
" " J. Lambert	1,500		1,500
" " S. N. Parent	2,160		2,160
" " "	810		810
" " R. Wallace	36		36
" " "	1,680		1,680
Total	105,704	510	105,194

Number of cargoes of wheat	75	
Quantity through Welland to Kingston	105,704	tons.
" transhipped at Kingston	510	"
" taken to Montreal in vessels in which it arrived at Kingston	105,194	"

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N.—STATEMENT showing the Number of Vessels which took their Cargoes of CORN through the Welland Canal from Ports west of Port Colborne; the quantity transhipped at Kingston, and the quantity of each Cargo through the St. Lawrence Canals to Montreal, during the Season of Navigation in 1905.

Names of Vessels.	Original Quantity through the Welland Canal.	Quantity Transhipped at Kingston.	Cargo through the St. Lawrence Canals to Montreal
	Tons.	Tons.	Tons.
Canadian steamer City of Montreal	630		630
" " "	784		784
" " Osceola	762		762
" sail, Melrose	1,487		1,487
United States steamer, Jno. Crearer	2,148		2,148
" " "	2,181		2,181
" " "	1,610		1,610
" " H. G. Dalton	2,156		2,156
" " "	1,409		1,409
" " "	2,156		2,156
" " A. D. Davidson	2,240		2,240
" " "	1,636		1,636
" " "	2,246		2,246
" " G. C. Howe	644		644
" " "	2,128		2,129
" " "	1,599		1,599
" " J. C. Keefe	2,229		2,229
" " "	2,244		2,244
" " "	2,184		2,184
" " "	2,225		2,225
" " Jno. Lambert	496		496
" " "	2,159		2,159
" " "	2,144		2,144
" " "	2,154		2,154
" " A. M. Marshall	2,223		2,223
" " "	2,100		2,100
" " "	2,218		2,218
" " "	1,659		1,659
" " "	2,229		2,229
" " "	2,199		2,199
" " "	2,212		2,212
" " S. N. Parent	2,240		2,240
" " "	2,204		2,204
" " J. Sharples	2,176		2,176
" " "	2,224		2,224
" " "	1,671		1,671
" " "	1,619		1,619
" barge Baden	2,286		2,286
" " Bay Port	1,861		1,861
" " Boravia	2,240		2,240
	75,012		75,012

No of cargoes of corn	40	
Quantity through Welland to Kingston	75,012	tons.
" transhipped at Kingston		"
" taken to Montreal in vessels in which it arrived at Kingston	75,012	"

RECAPITULATION of the Number of Vessels passed DOWN the Welland Canal with Cargoes of Grain for Montreal; the quantity transhipped at Kingston, and the quantity taken to Montreal, for the Season of Navigation in 1905.

—	Number of Cargoes,	Total Number.
Wheat	75	
Corn	40	
Total		115
	Tons.	Tons.
Quantity of wheat through the Welland Canal bound for Montreal	105,704	
" corn " "	75,012	
Total through the Welland Canal		180,716
Quantity of the above transhipped at Kingston—		
Wheat	510	
Corn		
Total transhipped		510
Quantity of the above cargoes taken to Montreal in vessels in which it arrived at Kingston—		
Wheat	105,194	
Corn	75,012	
Total quantity to Montreal		180,206
Grand total		180,716

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O.—STATEMENT showing the Quantity of Grain passed down the Welland Canal to Kingston, Ogdensburg and other Ports; in Canadian and United States vessels entering the Canal at Port Colborne, during the Season of Navigation in 1905.

ARTICLES.	CANADIAN VESSELS.				UNITED STATES VESSELS.				TOTAL.	
	Steam.		Sail.		Steam.		Sail.		Steam and Sail	
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.
	129	126,111	19	15,862	187	221,097	13	5,789	348	368,859
Barley		6,894		1,427		47,111				55,432
Corn		6,385		6,636		163,374		4,526		180,921
Oats		8,506		2,289		21,535		3,742		36,072
Pease						76				76
Rye						1,711				1,711
Wheat		188,737		18,544		28,757		2,512		238,550
Total		210,522		28,896		262,564		10,780		512,762

			Tons.
145	cargoes in Canadian Vessels	Steam, total quantity	210,522
22	" "	Sail, "	28,896
222	" United States "	Steam, "	262,564
13	" " "	Sail, "	10,780

P.—STATEMENT of the Quantity of Grain arrived at Kingston and Ogdensburg in Vessels which passed DOWN the Welland Canal, during the Season of Navigation in 1905.

Summary.	Tons.	Tons.
Canadian steam—145 cargoes of grain	210,522	
" sail 22 "	28,896	
Total in Canadian vessels		239,418
United States steam—222 cargoes of grain	262,564	
" sail 13 "	10,780	
Total in United States vessels		273,344
Total in Canadian and United States Vessels		512,762
Distributed as follows:—		
74 Canadian and 87 United States vessels arrived at Kingston and discharged part of their cargoes, taking the balance to Montreal		234,047
241 vessels arrived at Kingston and discharged all their cargoes, as follows:		
92 cargoes in Canadian vessels	140,723	
148 " United States vessels	137,417	
Quantity discharged by 1 Canadian vessel which took the balance to Montreal	575	
Total quantity discharged	278,715	
Total quantity of above transhipped from Kingston and Ogdensburg and taken to Montreal		*107,384
Quantity remaining at Kingston, Ogdensburg and other American ports		171,331
Total		512,762

* Of this quantity, 2,809 tons were transhipped from Kingston, being grain of 1904.

Q.—Comparative Statement of the Quantity of Grain passed Down the Welland Canal to Kingston and Ogdensburg, during the Seasons of Navigation in 1904 and 1905.

	1904.		1905.	
	No. of Cargoes.	Tons.	No. of Cargoes.	Tons.
Quantity arrived at Kingston in Canadian vessels	115	174,121	167	239,418
Quantity arrived at Kingston and Ogdensburg in United States vessels	118	150,359	235	273,344
	233	324,480	402	512,762
Quantity transhipped at Kingston and Ogdensburg in Canadian vessels for Montreal	.....	*82,151	.....	107,384
Quantity taken to Montreal in vessels in which it arrived at Kingston	.....	116,095	.....	234,047
Quantity remaining at Kingston, Ogdensburg and Cardinal	.....	126,234	.....	171,331
Total	.....	324,480	.....	512,762

* Of this quantity, 4,014 tons were transhipped to Montreal in 1904. 161 vessels took their cargoes through in 1905, against 75 in 1904. 1 vessel discharged part of their cargo in 1905, against 2 in 1904. 240 vessels discharged all their cargo in 1905, against 156 in 1904.

R.—Statement showing the Number of Vessels, their Tonnage, Number of Passengers, and Tons of Freight, passed down the Rapids of the St. Lawrence Canals, during the Season of Navigation in 1905.

	No. of Sections.	No. of Vessels.	Tonnage of Vessels.	Number of Passengers	Class Three.	Class Four.	Class Five.	Special Class.	Tolls.
									$ cts.
Prescott to Montreal	4	120	66,981	13,300	116	1,330	.....	.....	2,095 33
" Lachine	3	28	14,825	1,405	1,525	500	.....	.....	410 20
Valleyfield to Montreal	2	6	540	.....	.....	.....	.....	.....	1 85
" Lachine	1	168	35,250	4,220	1,800	825	20	.....	280 20
Lachine to Montreal	1	320	54,378	21,860	1,300	1,280	16	.....	805 20
Total	....	642	171,974	39,785	4,741	3,935	36	....	3,592 78

S.—The quantity of Coal passed through the Welland Canal during a series of years from 1885 to 1905, inclusive, and the amount of Tolls collected thereon, is as follows :—

Years.	From Canadian Ports to Canadian Ports.	From Canadian Ports to Canadian Ports.	From United States Ports to United States Ports.		From United States Ports to Canadian Ports.		Total.	Amount of Tolls paid. — Rate 20 cents a ton.
	Up.	Down.	Up.	Down.	Up.	Down.		
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	$ cts.
1885			193,442	4,974	10,321	31,350	240,087	48,017 40
1886			184,564	5,400	22,187	49,724	261,875	52,375 00
1887			81,617	1,163	26,775	25,968	135,523	27,104 60
1888			172,381	878	17,365	27,183	217,807	43,561 40
1889			226,352	1,124	12,036	25,931	265,443	53,188 60
1890	80		116,616	615	17,280	22,781	202,372	38,222 30
1891			185,190	1,382	17,374	20,698	224,644	44,928 20
1892			183,244	651	12,391	15,330	211,616	42,284 13
1893			204,704	2,123	8,325	17,944	233,096	46,619 20
1894			187,794	727	1,269	13,947	203,737	40,789 93
1895	4		148,887	603	1,565	7,807	158,866	31,773 05
1896	20	210	206,093	1,255	4,127	11,740	223,445	44,668 20
1897		4	165,143		1,277	9,799	176,223	35,244 60
1898			156,055	759	986	4,536	162,336	32,467 20
1899			86,638	2,293	525	8,276	97,732	19,546 40
1900	8		45,032	992		1,360	47,392	9,478 40
1901			46,345	357	456	2,322	49,480	9,896 00
1902			12,410	501	65	51,037	64,013	12,845 60
1903	3		113,076		4,796	30,009	147,884	29,576 80
1904	2,919		62,782	1,100	3,711	32,813	103,325	20,665 00
1905			70,118	3,346	11,436	37,742	172,642	34,528 40

Note.—Tolls on soft coal passed down the Welland Canal, during the season of 1890, were reduced from 20 to 10 cents a ton, per O. C. May 11, 1890, for the season of 1890 only ; the rate for 1891, 1892, 1893, 1894, 1895, 1896, 1897, 1898, 1899, 1900, 1901 and 1902, being 20 cents a ton for passage either eastward or westward. During 1905 all tolls were free. O. C. April 23, 1903.

T.—Statement showing the quantity of Coal passed through the whole length of the St. Lawrence Canal during the seasons of 1885 to 1905, inclusive.

Years.	Quantity passed up free of Tolls.	Quantity passed down to Montreal.	Total Quantity passed up and down.	Amount of Tolls on Quantity passed down Montreal.
	Tons.	Tons.	Tons.	$ cts.
1885	5,035	122,829	127,864	18,424 35
1886	3,301	118,802	122,103	17,820 70
1887	7,579	121,618	129,197	18,242 70
1888	8,341	123,050	131,391	18,423 90
1889	5,360	124,290	129,650	18,604 90
1890	6,538	135,168	141,706	20,275 20
1891	7,951	141,701	149,652	21,255 15
1892	7,543	157,134	164,677	23,570 10
1893	2,285	147,139	149,424	22,070 85
1894	16,213	169,552	185,765	25,432 80
1895	.....	165,151	165,151	24,772 65
1896	689	161,551	162,240	24,232 65
1897	40	164,963	165,003	24,722 37
1898	400	175,609	176,009	26,341 05
1899	448	201,546	201,994	30,231 80
1900	10	280,169	280,179	42,025 35
1901	2,765	298,245	301,010	44,732 55
1902	9,231	95,702	104,933	11,958 90
1903	30	290,548	290,578	*43,555 73
1904	9,670	320,973	330,643	*48,145 95
1905	8,518	345,589	354,107	*51,808 33

Note.—Coal is allowed to pass free up the St. Lawrence Canal. Con. O. C. Oct. 26, 1889.

*These tolls were 'free' by O.C. April 27, 1903.

U.—COMPARATIVE STATEMENT of the quantity of Freight passed down the Welland Canal, showing the quantity to Montreal, the quantity to Canadian Ports between Port Dalhousie and Cornwall, and the quantity to United States Ports, Oswego, Ogdensburg, &c., on the south side of Lake Ontario, for the years 1894 to 1905 inclusive.

Articles.	Quantity passed down to Montreal.	Quantity passed down to Canadian Ports between Port Dalhousie and Cornwall.	Quantity passed down to United States Ports.
1894.	Tons.	Tons.	Tons.
Apples	50		
Ashes	19		
Barley	258		28,095
Bricks		552	
Coal		13,818	727
Corn	60,661	3,243	105,329
Dye woods and dye stuffs		4	2
Fish			5
Flour	16,503	41	16,880
Furniture	2	3	
Horses	1	2	4
Iron, pig	195	2,170	
" all other	1	183	
Meals	4		60,390
Nails			57
Oats	175	107	27,621
Oil cake	29		
" in barrels		27	
Pork	717		56
Salt		133	
Spirits, beer, &c.		3	
Sugar			52
Wheat	212,557	13,349	42,934
White lead	16		
Wool			1,484
Merchandise not enumerated	314		2,889
Barrels, empty		16	
Sawn lumber, in vessels	683		86,545
Square timber "		47,030	
Woodenware "	6		
Total	292,191	80,681	373,070

There was no rebate allowed of the Welland Canal toll on grain passed down to Montreal during the season of navigation in 1894.

The tolls were, however, reduced by Order in Council of 16th April, 1894, as follows :—For the season of 1894, the canal tolls for the passage of the following food products: wheat, Indian corn, pease, barley, rye, oats, flaxseed and buckwheat, for passage eastward, through the Welland Canal be ten cents per ton: and for passage eastward through the St. Lawrence Canals only, ten cents per ton, payment of the said toll of ten cents a ton for passage through the Welland Canal to entitle these products to free passage through the St. Lawrence Canals.

U.—Comparative Statement of the Quantity of Through Freight passed down the Welland Canal, &c.—*Continued.*

Articles.	Quantity passed down to Montreal.	Quantity passed down to Canadian Ports between Port Dalhousie and Cornwall.	Quantity passed down to United States Ports.
1895.	Tons.	Tons.	Tons.
Apples	28		
Ashes	34	15	
Barley	959		7,730
Bricks		651	
Coal		7,809	603
Corn	70,235	2,912	91,743
Flour	30,916	1,824	10,265
Furniture		12	2
Glass		1	
Horses	1	1	
Hides, skins, &c			8
Iron, railway			181
" pig	79	1,994	
" all other	1,766	1,408	214
Lard and lard oil			6
Meal, all kinds	65		46,316
Meats, other than pork			30
Molasses	100		
Oats	1,654	123	16,442
Oil, in barrels	6	41	30
Pork			87
Paint	2		
Salt		36	
Stone, for cutting		430	
Seeds, all kinds			14
Steel	394		462
Sugar			59
Spirits, beer, &c	101	84	15
Tobacco		16	
Wheat	*158,643	29,061	17,908
Wool			1,536
Merchandise not enumerated	558	1,302	7,656
Barrels, empty	1		
Sawn lumber, in vessels	1,117	492	43,286
Railway ties			1,942
Shingles		19	
Square timber, in vessels		63,715	500
Total	266,659	111,946	247,035

* Of this amount 3,469 tons came down to Kingston in 1894, were stored there and taken to Montreal in 1895; and 245 tons came down to Ogdensburg in 1894, stored there, and transhipped to Montreal in 1895.

U.—Comparative Statement of the Quantity of Through Freight passed down the Welland Canal, &c.—*Continued.*

Articles.	Quantity passed down to Montreal.	Quantity passed down to Canadian Ports between Port Dalhousie and Cornwall.	Quantity passed down to United States Ports.
1896.	Tons.	Tons.	Tons.
All other vegetables	29		
Apples	†1,263		
Ashes	94		
Barley	240		11,128
Cement and water-lime	12		
Coal		11,742	1,255
Corn	182,330	19,688	118,426
Crockery	5		
Fish		2	
Flour	11,964	13,846	16,224
Furniture		3	
Glasf	9	3	
Hay, pressed		563	
Hides, skins, &c			41
Horses	1	1	3
Iron, railway		1,192	
" pig	5	1,559	
" all other	2,020	1,725	
Lard aud lard oil			1,348
Meal, all kinds		500	46,456
Molasses	167		
Oats	12,373	1,454	14,351
Oil, in barrels	23		1,005
Pease	3,020	10	
Pork	1		390
Rags	4		
Rye	8,323	647	
Salt		80	
Seeds of all kinds	20		78
Steel	542	11,317	498
Sugar	1		165
Tobacco		1	
Wheat	*254,763	51,587	16,467
Wool		8	900
Merchandise not enumerated	376	54	3,990
Barrels, empty			10
Firewood, in vessels			165
Sawn lumber "	657	1,286	78,397
Shingles		94	40
Square timber, in vessels		55,588	
" in rafts	1,200		
Woodenware			12
Total	479,442	172,950	311,349

† 523 tons of this quantity of apples paid full tolls by sections on the Welland Canal, and consequently does not appear on the Welland Through Statement.

* Of this amount 5,290 tons came down to Kingston in 1895, were stored there and transhipped to Montreal in 1896.

U.—Comparative Statement of the Quantity of Through Freight passed down the Welland Canal, &c.—*Continued.*

Articles.	Quantity passed down to Montreal.	Quantity passed down to Canadian Ports between Port Dalhousie and Cornwall.	Quantity passed down to United States Ports.
1897.	Tons.	Tons.	Tons.
Agricultural products, vegetable			32
Ashes	133		
Barley			14,173
Bricks		739	845
Clay, lime and sand	38	430	
Coal		9,803	
Corn	*264,396	11,103	115,689
Flaxseed	3,293	169	
Flour	1,029	211	7,237
Furniture	1	5	
Glass	53	9	
Hay, pressed			301
Horses	1	1	3
Hides and skins, &c			23
Iron, railway		6,241	965
" pig		2,828	
" all other	7,564	6,143	
Lard and lard oil			1,444
Meal, all kinds		699	41,644
Molasses	9		
Oats	*6,847	3,046	15,233
Oil, in barrels	112	51	198
Pease	*2,078	3	
Pork			243
Rye	8,435	48	
Salt	216		
Stone for cutting		330	
Seeds, all kinds			299
Steel	375	4,680	
Sugar			31
Spirits, beer, &c	46		
Tobacco	51		
Wheat	*278,498	†39,057	12,661
Wool			197
Merchandise not enumerated	1,214	347	3,591
Firewood, in vessels		12	
Hoops	257	8	
Lumber, sawn, in vessels	478	1,158	69,710
Masts " "			403
" " rafts		5	
Railway ties, in vessels		999	
Split posts "		4	
Timber, square "	1,207	81,117	1,040
Staves and headings, salt barrel	4,716		
Woodenware			1
Total	581,047	169,246	285,963

* Of this quantity of corn 573 tons came down to Ogdensburg and Prescott in 1896, were stored there and transhipped to Montreal in 1897.

* Of this quantity of oats 50 tons came down to Prescott in 1896 and passed down to Montreal in 1897, and 170 tons passed through on St. Catharines Reports; 136 tons of which passed down to Montreal.

* Of this quantity of pease 230 tons were transhipped and passed through on St. Catharines Reports.

* Of this quantity of wheat 624 tons were transhipped and passed through on St. Catharines Reports, and 7,072 tons came down to Kingston and Prescott in 1896 and passed down to Montreal in 1897.

† Of this quantity, 1,079 tons were transhipped and passed through on St. Catharines Reports.

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U.—Comparative Statement of the Quantity of Through Freight passed down the Welland Canal, &c.—*Continued.*

Articles.	Quantity passed down to Montreal.	Quantity passed down to Canadian Ports between Port Dalhousie and Cornwall.	Quantity passed down to United States Ports.
1898.	Tons.	Tons.	Tons.
Agricultural products, vegetable	56		
Ashes	73		
Barley	3,960	1,417	6,909
Cement and water-lime			300
Clay, lime and sand	52	1	
Coal		4,536	759
Corn	*310,498	13,338	116,317
Flaxseed	5,687	9	
Flour	653		4,212
Furniture			2
Glass	75		
Horses	4		
Iron, railway		674	770
" pig		4,187	
" all other	6,217	257	324
" ore		13,433	
Lard and lard oil			3,671
Meal, all kinds			22,626
Molasses	56		
Oats	3,975	625	12,729
Oil, in barrels	1,141	15	119
Paint			3
Pease	260		45
Pork			1,271
Rye	*16,133	39	
Salt	141	644	
Seeds, all kinds			44
Spirits, beer, &c	4		34
Steel	1,351	3,122	2,951
Stone for cutting		554	
Tallow			359
Wheat	*184,706	15,860	8,612
Wool			89
Merchandise not enumerated	866	25	3,828
Firewood, in vessels		747	
Lumber, sawn, in vessels	3,065	2,840	72,897
Railway ties		190	
Shingles		11	
Square timber	329	48,369	
Total	539,305	110,893	258,871

* Of this quantity of corn 2,340 tons came down to Ogdensburg and Prescott in 1887, were stored there, and transhipped to Montreal in 1898.

* Of this quantity of rye 45 tons came down to Prescott in 1897, were stored there, and transhipped to Montreal in 1898.

* Of this quantity of wheat 4,165 tons came down to Kingston in 1897, were stored there, and transhipped to Montreal in 1896.

U.—Comparative Statement of the Quantity of Through Freight passed down the Welland Canal, &c.—*Continued.*

Articles.	Quantity passed down to Montreal.	Quantity passed down to Canadian Ports between Port Dalhousie and Cornwall.	Quantity passed down to United States Ports.
1899.	Tons.	Tons.	Tons.
Agricultural products, vegetable	32		
Ashes	58		
Barley	596		1,828
Clay, lime and sand	15		
Coal		8,276	2,293
Corn	*150,999	16,594	43,854
Flaxseed	200		
Flour	4,229	1,889	4,404
Furniture		2	7
Glass	16		
Horses	1		
Iron, ore		26,125	
" all kinds	5,063		294
Lard snd lard oil		3	864
Meal, all kinds			18,198
Molasses	159		8
Nails	1	1	11
Oats	*10,250	1	13,139
Oil, in barrels	7,143	2	254
Paint			2
Pork			343
Rags			1
Rye	923		
Salt	183	479	549
Seeds, all kinds			11
Spirits, beer, &c	74	71	168
Steel	3,000	1,562	11,802
Stone for cutting		429	
Tallow			201
Tobacco	96		
Wheat	*169,978	23,602	9,190
Wool			130
Merchandise not enumerated	518	126	6,219
Barrels, empty	1		
Firewood, in vessels		27	
Hop poles		100	
Lumber, sawn, in vessels	924	4,583	57,695
Masts and spars "		3	
Railway ties "		74	1,273
Shingles		50	
Square timber, in vessels	26	24,959	
Total	354,485	108,958	172,738

* Of this quantity of corn 7,443 tons came down to Ogdensburg and Prescott in 1898, were stored there, and transhipped to Montreal in 1899.

* Of this quantity of oats 187 tons passed down from Dunville to Montreal.

* Of this quantity of wheat 6,447 tons passed down to Kingston in 1898, were stored there, and transhipped to Montreal in 1899.

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U.—Comparative Statement of the Quantity of Through Freight passed down the Welland Canal, &c.—*Continued.*

Articles.	Quantity passed down to Montreal.	Quantity passed down to Canadian Ports between Port Dalhousie and Cornwall.	Quantity passed down to United States Ports.
1900.	Tons.	Tons.	Tons.
Agricultural products, vegetable		1	6
Ashes	25	15	
Barley	1,288	563	1,598
Cement and water-lime			18
Clay, lime and sand	15		
Coal		1,360	992
Corn	*109,359	9,844	44,306
Flour	1,595	990	6,371
Furniture	1		
Glass, all kinds	6	4	
Horses			4
Iron, pig	508	1,284	
" all other	4,292	1,044	714
" ore		58,400	
Lard and lard oil			1,588
Meal (all kinds)			14,244
Molasses		21	57
Oats	*8,925	348	30,840
Oil, in barrels	15,647	4,288	17
Oil-cake			2,705
Paint		2	36
Pease	115		4
Pitch and tar		24	
Pork			117
Rye	3,078	160	300
Salt		467	
Soda ash		15	
Steel	5,420		2,601
Sugar			154
Tallow			631
Wheat	*121,896	6,610	7,541
White lead	16		
Merchandise not enumerated	103	154	7,899
Barrels, empty	182	407	5
Firewood, in vessels		1,143	
Lumber, sawn, in vessels	15,760	5,701	55,128
Shingles		90	
Square timber, in vessels		20,267	
Staves		3	
Total	288,231	113,205	177,876

* Of this quantity of corn 751 tons came to Ogdensburg, Kingston and Prescott in 1899, were stored there, and transhipped to Montreal in 1900.

* Of this quantity of oats 585 tons came down to Ogdensburg, Kingston and Prescott in 1899, were stored there, and transhipped to Montreal in 1900.

* Of this quantity of wheat 10,835 tons came down to Ogdensburg, Kingston and Prescott in 1900, were stored there, and transhipped to Montreal in 1900.

U.—Comparative Statement of the Quantity of Through Freight passed down the Welland Canal, &c.—*Continued.*

Articles.	Quantity passed down to Montreal.	Quantity passed down to Canadian Ports between Port Dalhousie and Cornwall.	Quantity passed down to United States Ports.
1901.	Tons.	Tons.	Tons.
Agricultural implements	1,785		
" products, vegetable			10
Ashes	3		
Barley			7,119
Coal		2,322	357
Corn	14,319	4,828	48,609
Flaxseed	4,965	2	
Flour	1,400	218	15,768
Furniture	5		
Glass (all kinds)	1		
Hay, pressed	246		
Iron, pig		1,790	
" all other	1,178	589	
" ore		98,452	
Lard and lard oil	1,155	827	525
Meal (all kinds)	35		13,981
Meats	114	7	
Molasses		17	
Oats	1,584	853	25,704
Oil (in barrels)	14,987	2,971	22
Oil-cake	1,083	113	219
Paint	17	6	
Pitch and tar		17	
Pork	34	970	10
Rye	2,961		
Salt	50	165	105
Soda ash	4		
Spirits, &c	32		
Sugar	112		448
Tallow			119
Tobacco, raw	23		
Wheat	*132,702	8,051	9,057
Wool			3
Merchandise not enumerated	2,420	1,395	966
Barrels, empty	66		216
Firewood, in vessels		1,287	
Lumber, sawn, in vessels	2,635	3,412	51,931
Mast spars, &c. "		13	
Shingles		18	
Square timber, in vessels	504	14,023	
Total	184,420	142,346	177,169

*Of this quantity 9,324 tons came to Ogdensburg in 1900, were stored there, and transhipped to Montreal in 1901.

U.—Comparative Statement of the Quantity of Through Freight passed down the Welland Canal, &c.—*Continued.*

Articles.	Quantity passed down to Montreal.	Quantity passed down to Canadian Ports between Port Dalhousie and Cornwall.	Quantity passed down to United States Ports.
1902.	Tons.	Tons.	Tons.
Agricultural implements	13		399
Barley			7,418
Coal	15,976		35,562
Corn	1,719	10,335	55,593
Fish		1	
Flour	6,755	5,697	7,030
Furniture			17
Iron, railway	50		
" all other	5,785		220
" ore		3,492	18,988
Lard and lard oil			2,413
Meal, all kinds			12,675
Molasses	54	18	
Oats	1,442		9,764
Oil, (in barrels)	12,091	131	1,594
Oil cake			110
Paint		20	
Pitch and tar		33	
Pork			632
Rye	4,079		
Seeds, all kinds			10
Sugar			280
Wheat	* 200,975	12,452	8,389
Wool			752
Merchandise not enumerated	419	172	1,928
Barrels (empty)	5	15	4
Firewood, in vessels		288	
Lumber, sawn, in vessels	1,085	2,178	97,300
Saw logs		28	
Square timber, in vessels		20,838	
Staves (barrel)		35	
Woodenware	17		
Total	250,475	55,733	261,078

*Of this quantity 6,096 tons were transhipped to Montreal, being grain of 1901.

U.—Comparative Statement of the Quantity of Through Freight passed down the Welland Canal, &c.—*Continued.*

Articles.	Quantity passed down to Montreal.	Quantity passed down to Canadian Ports between Port Dalhousie and Cornwall.	Quantity passed down to United States Ports.
1903.	Tons.	Tons.	Tons.
Agricultural implements	46		
" products		1	
Ashes	14		
Barley	2,206	1,017	11,433
Coal		30,009	
Corn	116,223	13,846	80,689
Flax and hemp		5	
Flaxseed	3,643		
Flour	16,151		6,082
Furniture	3	10	
Glass, all kinds	15		
Horses			2
Iron, railway		15	
" all other	2,542	556	
" ore		18,323	
Meal, all kinds	348		13,549
Molasses	240	16	
Nails	19		
Oats	2,438		5,315
Oil	14,619	518	2,000
Oil cake	462	792	740
Paint	5		
Pease	63		22
Pork			152
Rags	4		
Rosin	20		
Rye	4,260		644
Salt	132	2,242	
Seeds, all kinds			27
Spirits	2		3
Steel		5	
Tallow	3	15	
Wheat	* 226,746	14,199	13,725
Wool			482
Merchandise not enumerated	582	117	2,012
Firewood, in vessels		210	9
Lumber, sawn, in vessels		3,086	76,563
Shingles		54	
Timber, square, in vessels		26,324	
Total	390,786	111,360	213,449

*Of this quantity 2,890 tons were transhipped to Montreal, being grain for 1902.

U.—Comparative Statement of the Quantity of Through Freight paesed down the Welland Canal, &c.—*Continued.*

Articles.	Quantity passed down to Montreal.	Quantity passed down to Canadian Ports between Port Dalhousie and Cornwall.	Quantity passed down to United States Ports.
1904.	Tons.	Tons.	Tons.
Agricultural implements	17		393
Apples	1		
Ashes	16		3
Barley	9,697	853	16,621
Cement and water-lime	35		
Coal		32,813	1,100
Corn	55,021	3,950	57,473
Dye woods and dye stuffs		2	
Flaxseed	212		
Flour	24,662	635	8,556
Furniture	6	12	
Glass, all kinds	3		1
Hides and skins	10	1	
Iron, railway	8,170		2,166
" all other	1,651		1,306
" ore	17,362		19,460
Meal, all kinds	57		13,096
Nails		18	
Oats			16,497
Oil, in barrels	12,843		1,755
Oil cake	7,846	2	
Paint		10	17
Pease			3
Pitch and tar		180	
Pork			379
Salt	615	478	
Steel	16	1	
Spirits, &c	766	458	
Sugar			53
Tallow		2	
Tin	87	28	
Wheat	*133,528	18,908	11,929
Wool			134
Merchandise	713	102	1,554
Firewood			717
Hop poles			154
Railway ties			652
Sawn lumber, in vessels		9,743	86,979
Square timber "	1,544	35,607	
Salt barrels	394		
Total	275,277	103,803	240,998

* Of this quantity 4,014 tons were transhipped to Montreal, being grain of 1903.

U.—Comparative Statement of the Quantity of Through Freight passed down the Welland Canal, &c.—*Continued.*

Articles.	Quantity passed down to Montreal.	Quantity passed down to Canadian Ports between Port Dalhousie and Cornwall.	Quantity passed down to United States Ports.
1905.	Tons.	Tons.	Tons.
Agricultural implements			552
Barley	43,607	2,628	9,197
Bricks		15	
Clay, lime and sand	22	200	
Coal	29,351	58,391	3,346
Corn	84,204	3,095	93,622
Crockery and earthenware	93		
Flaxseed	15,694		
Flour	14,571	14,458	9,483
Glass, all kinds	21	4	
Hay, pressed		200	
Hides and skins		46	
Iron, railway	10	1,531	
" pig		980	
" all other	384	2,160	1
" ore	3,837	18,544	
Lard and lard oil	2,847		
Meats, other than pork			87
Meal, all kinds	270	200	9,336
Molasses	820	63	
Nails	64		1
Oats	21,404	3,776	10,892
Oil, in barrels	20,700	3,082	
Oil cake	9,229	662	228
Paint		42	
Pease			76
Pitch and tar	53		
Pork			273
Rags			4
Rye	1,711		
Salt	168	36	
Seeds, all kinds			43
Soda ash	59	8	
Spirits, &c	635	104	
Steel	48		
Sugar	2,019		53
Tallow	53		
Tin	53		
Tobacco	204		
Wheat	* 190,505	32,562	15,483
White lead			7
Wool			21
Merchandise	851	205	2,008
Barrels, empty			3
Firewood			2,700
Railway ties			2,248
Sawn lumber, in vessels	3,957	12,794	74,279
Square timber, in vessels	1,260	9,500	
Shingles			62
Split posts, in vessels			12
Total	448,704	165,286	234,017

* Of this quantity 2,809 tons were transhipped to Montreal, being grain of 1904.

U.—STATEMENT showing the quantity of Through Freight passed down the Welland Canal to Canadian Ports, &c.—*Continued.*

RECAPITULATION—*Continued.*

Articles.	Qeantity passed down to Montreal.	Qqantity passed down to Canadian Ports between Port Dalhousie and Cornwall.	Quantity passed down to United States Ports on the south side of Lake Ontario.
1894.	Tons.	Tons.	Tons.
Barley	258		28,095
Corn	60,661	3,243	105,329
Oats	175	107	27,621
Pease			
Rye			
Wheat	212,557	13,349	42,934
Total grain	273,651	16,699	203,979
Other articles	18,540	63,982	169,091
Total	292,191	80,681	373,070
1895.			
Barley	959		7,730
Corn	70,265	2,912	91,743
Oats	1,654	123	16,442
Rye			
Wheat	†158,643	29,061	17,908
Total grain	231,491	32,096	133,823
Other articles	35,168	79,850	113,212
Total	266,659	111,946	247,035
1896.			
Barley	240		11,128
Corn	182,330	19,688	118,426
Oats	12,373	1,454	14,351
Pease	3,020	10	
Rye	8,323	647	
Wheat	254,763	51,587	16,467
Total grain	*461,049	73,386	160,372
Other articles	18,393	99,564	150,977
Total	749,442	172,950	311,349
1897.			
Barley			14,173
Corn	264,396	11,103	115,689
Oats	6,847	3,046	15,234
Pease	2,078	3	
Rye	8,435	48	
Wheat	278,498	39,057	12,661
Total grain	**560,254	53,257	157,756
Other articles	20,793	115,989	128,207
Total	581,047	169,246	285,963

† Of this amount, 3,469 tons came down to Kingston in 1894, was stored there, and taken to Montreal in 1895, and 245 tons came down to Ogdensburg in 1894, was stored there, and transhipped to Montreal in 1895.

* Of this amount, 5,290 tons came down to Kingston in 1895, was stored there, and transhipped to Montreal ln 1896.

** Of this quantity, 7,695 tons came down in 1896 and were transshipped to Montreal in 1897.

U.—STATEMENT showing the quantity of Through Freight passed down the Welland Canal to Canadian Ports, &c.—*Continued.*

RECAPITULATION—*Continued.*

Articles.	Quantity passed down to Montreal.	Quantity passed down to Canadian Ports between Port Dalhousie and Cornwall.	Quantity passed down to United States Ports on the south side of Lake Ontario.
1898.	Tons.	Tons.	Tons.
Barley	3,960	1,417	6,909
Corn	310,498	13,338	116,317
Oats	3,975	625	12,729
Pease	260		45
Rye	16,133	39	
Wheat	184,706	15,860	8,612
Total grain	**519,532	31,279	144,612
Other articles	19,773	79,614	114,259
Total	539,305	110,893	258,871
1899.			
Barley	596		1,828
Corn	150,999	16,594	43,854
Oats	10,250	1	13,139
Pease			
Rye	923		
Wheat	169,978	23,602	9,190
Total grain	***332,746	40,197	68,011
Other articles	21,739	68,761	104,727
Total	§354,485	108,958	172,732
1900.			
Barley	1,288	563	1,598
Corn	109,359	9,844	44,306
Oats	8,925	348	30,840
Pease	115		4
Rye	3,078	160	300
Wheat	121,896	6,610	7,541
Total grain	***244,661	17,525	84,589
Other articles	43,570	95,680	93,287
Total	288,231	113,205	177,876
1901.			
Barley			
Corn	14,319	4,828	48,609
Oats	1,584	853	25,704
Pease			
Rye	2,961		
Wheat	132,702	8,051	9,057
Total grain	† 151,566	13,732	83,370
Other articles	32,854	128,614	91,799
Total	184,420	142,346	175,169

* Of this quantity, 6,550 tons came down in 1897 and were transhipped to Montreal in 1898.
** Of this quantity, 14,077 tons came down in 1898 and were transhipped to Montreal in 1899.
*** Of this quantity, 12,171 tons came down in 1899 and were transhipped to Montreal in 1900.
† Of this quantity, 9,324 tons came down in 1900 and were transhipped to Montreal in 1901.

U.—STATEMENT showing the Quantity of Through Freight passed down the Welland Canal to Canadian Ports, &c.—*Concluded.*

RECAPITULATION—*Concluded.*

Articles.	Quantity passed down to Montreal.	Quantity passed down to Canadian Ports between Port Dalhousie and Cornwall.	Quantity passed down to United States Ports on the south side of Lake Ontario.
1902.	Tons.	Tons.	Tons.
Wheat	.....	.....	7,418
Corn	1,719	10,335	55,593
Oats	1,442	.....	9,764
Pease	.....	.....	.....
Rye	4,079	.....	.....
Wheat	200,975	12,452	8,389
Total grain	‡208,215	22,787	81,164
Other articles	42,260	32,946	179,914
Total	250,475	55,733	261,078
1903.			
Barley	2,206	1,017	11,433
Corn	116,223	13,846	80,689
Oats	2,438	.....	5,315
Pease	63	.....	22
Rye	4,260	.....	644
Wheat	226,746	14,199	13,725
Total grain	§351,936	29,062	111,828
Other articles	38,850	82,298	101,621
Total	390,786	111,360	213,449
1904.			
Barley	9,697	853	16,621
Corn	55,021	3,950	57,473
Oats	.....	.....	16,497
Pease	.....	.....	3
Rye	.....	.....	.....
Wheat	**133,528	18,908	11,929
Total grain	198,246	23,711	102 523
Other articles	77,031	80,092	138,475
Total	375,277	103,803	240,998
1905.			
Barley	43,607	2,628	9,197
Corn	84,204	3,095	93,622
Oats	21,404	3,776	10,892
Pease	.....	.....	76
Rye	1,711	.....	.....
Wheat	190,505	32,562	15,483
Total grain	***341,431	42,061	129,270
Other articles	107,273	123,225	104,747
Total	448,704	165,286	234,017

‡Of this quantity, 6,096 tons came down in 1901 and were transhipped in 1902.
§Of this quantity, 2,890 tons came down in 1902 and were transhipped in 1903.
**Of this quantity, 4,014 tons were transhipped to Montreal, being grain of 1903.
***Of this quantity, 2,809 tons were transhipped to Montreal, being grain of 1904.

COMPARATIVE STATEMENT showing the Quantity of Vegetable Food and Lumber passed through the Canals during the Years ended December 31 1905.

	Vegetable Food.								Lumber.	Total.
	Flour.	Wheat.	Corn.	Barley.	Oats.	Rye.	Buck-wheat.	All other.		
	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.
Welland Canal, 1904	35,049	165,138	116,444	27,171	16,582	.....	.....	13,181	97,409	470,974
" 1905	38,512	254,458	180,921	55,432	36,072	1,711	.....	9,883	93,543	670.532
Increase	3,463	89,320	64,477	28,261	19,490	1,711	.....	.....	.....	199,558
Decrease	.....	.....	.....	.....	.....	.....	.....	3,298	3,866	.....
St. Lawrence Canals, 1904	32,714	275,151	128,059	22,224	20,214	3	630	6,601	41,660	527,256
" 1905	26,125	403,252	161,095	59,846	44,915	3,393	719	6,377	63,942	769,664
Increase	.....	128,101	33,036	37,622	24,701	3,390	89	.....	22,282	242,408
Decrease	6,589	.....	.....	.....	.....	.....	.....	224	.....	.....
Chambly Canal, 1904	1,239	3	202	.....	1,152	.....	3	1,494	46,547	50,640
" 1905	584	.....	2	.....	1,891	.....	.....	1,332	78,126	81,935
Increase	.....	.....	.....	.....	739	.....	.....	.....	31,579	31,295
Decrease	655	3	200	.....	.....	.....	3	162	.....	.....
Ottawa Canals, 1904	96	.....	.....	.....	971	5	.....	425	237,881	239,378
" 1905	107	.....	1	.....	1,016	.....	2	622	292,800	294,548
Increase	11	.....	1	.....	45	.....	2	197	54,919	55,170
Decrease	.....	.....	.....	.....	.....	5	.....	.....	.....	.....
Rideau Canal, 1904	637	1,801	15	66	927	.....	5	313	14,649	18,413
" 1905	647	977	4	105	508	.....	.....	297	19,577	22,115
Increase	10	.....	.....	39	.....	.....	.....	.....	4,928	3,702
Decrease	.....	824	11	.....	419	.....	5	16	.....	.....

St. Peter's Canal, 1904	1,691		8	4	1,703		3	5,456	6,919	15,784
" 1905	1,451			11	2,498			7,469	8,305	19,734
Increase				7	795			2,013	1,386	3,950
Decrease	240		8				3			
Trent Valley Canals, 1904		69						120		189
" 1905	25	484		15	15			163	3,619	4,321
Increase	25	415		15	15			43	3,619	4,132
Decrease										
Murray Canal, 1904	21	259	32	607	38	98	48	437	452	1,992
" 1905	180	408	1	633	27			875	59	2,183
Increase	159	149		26				438		191
Decrease			31		11	98	48		393	
Sault Ste. Marie Canal, 1904	213,845	893,823		35,163	31,136	1,375		15,469	31,370	1,222,181
" 1905	190,878	779,493	4,116	41,793	35,720	1,910		5,671	35,368	1,094,949
Increase			4,116	6,630	4,584	535			3,998	
Decrease	22,967	114,330						9,798		127,232
Total, Increase		102,828	101,380	72,600	49,939	5,533	32		118,452	413,174
Total, Decrease	26,783							10,807		

Total for year 1904 2,546,807
" 1905 2,959,981

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, June 15, 1906.

RICHARD DEVLIN,
Compiler of Canal Statistics.

CANAL

COMPARATIVE STATEMENT for Years

—	January.	February.	March.	April.	May.
	$ c.	$ c.	$ c.	$ c.	$ c.
Welland Canal, 1904		10 00			9,077 95
" 1905				3,288 86	21,346 64
Increase				3,288 86	12,268 69
Decrease		10 00			
St. Lawrence Canals, 1904	43 28	58 33		827 16	15,053 14
" 1905			45 00	802 40	16,452 09
Increase			45 00		1,398 95
Decrease	43 28	58 33		24 76	
Chambly Canal, 1904				8 77	4,120 27
" 1905				13 27	4,460 39
Increase				4 50	340 12
Decrease					
Ottawa Canals, 1904				730 09	3,050 09
" 1905				641 08	4,703 43
Increase					1,653 34
Decrease				89 01	
Rideau Canal, 1904					599 43
" 1905					646 18
Increase					46 75
Decrease					
St. Peter's Canal 1904					312 44
" 1905				2 94	380 56
Increase				2 94	68 12
Decrease					
Trent Valley Canals, 1904				31 00	59 06
" 1905				5 06	75 62
Increase					16 56
Decrease				25 94	
Murray Canal, 1904				6 02	93 20
" 1905				4 69	111 68
Increase					18 48
Decrease				1 33	
Sault Ste. Marie Canal, 1903					
" 1904					
Increase					
Decrease					
Total increase			45 00	3,155 26	15,811 01
Total decrease	43 28	68 33			

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, June 15, 1906.

REVENUE.

ending December 31, 1904 and 1905.

June.	July.	August.	September.	October.	November.	December.	Total.
$ c.	$ s.	$ s.	$ s.	$ s.	$ s.	$ s.	$ c.
19,229 71	19,988 30	14,436 17	18,947 26	16,557 73	15,709 77	3,919 56	117,876 45
22,001 34	21,063 78	22,335 79	20,836 58	25,385 04	17,205 43	4,303 81	157,767 27
2,771 63	1,075 48	7,899 62	1,889 32	8,827 31	1,495 66	384 25	39,890 82
.....	.....	.....	.....	.....	.....	.....	.....
18,288 16	18,761 67	18,364 01	15,415 15	15,413 37	11,529 01	66 29	113,819 57
19,742 45	21,456 23	20,641 37	18,633 85	18,015 82	14,114 77	142 71	130,046 69
1,454 29	2,694 56	2,277 36	3,218 70	2,602 45	2,585 76	76 42	16,227 12
.....	.....	.....	.....	.....	.....	.....	.....
2,854 60	4,643 75	5,006 71	4,480 28	4,248 17	2,098 32	.....	27,460 87
3,388 38	4,632 41	4,394 10	4,053 66	5,405 57	2,044 10	.....	28,391 88
533 78	.....	.....	.....	1,157 40	.....	.....	931 01
.....	11 34	612 61	426 62	.....	54 22	.....	.....
3,640 94	3,216 80	3,312 87	2,156 78	3,792 91	2,352 24	.....	22,252 72
4,598 35	4,130 27	3,681 32	4,198 24	4,173 60	2,870 74	.....	28,997 03
957 41	913 47	368 45	2,041 46	380 69	518 50	.....	6,744 31
.....	.....	.....	.....	.....	.....	.....	.....
610 72	724 56	1,201 82	701 36	761 97	426 78	.....	5,026 64
772 07	1,041 94	1,066 10	986 05	832 77	373 83	55 89	5,774 83
161 35	317 38	.....	284 69	70 80	.....	55 89	748 19
.....	.....	135 72	.....	.....	52 95	.....	.....
339 26	341 88	423 10	421 70	467 84	304 61	154 92	2,765 75
363 83	390 50	417 39	411 51	388 18	354 09	202 96	2,911 96
24 57	48 62	.....	.....	.....	49 48	48 04	146 21
.....	.....	5 71	10 19	79 66	.....	.....	.....
203 90	360 01	346 26	201 71	139 21	22 00	14 00	1,377 15
203 81	274 54	284 99	212 65	158 78	94 68	.....	1,310 13
.....	.....	.....	10 94	19 57	72 68	.....	.....
09	85 47	61 27	.....	.....	.....	14 00	67 02
115 49	214 98	257 11	165 35	163 74	81 93	.....	1,097 82
124 95	219 27	280 13	197 38	140 33	128 96	50	1,205 89
9 46	2 29	23 02	32 03	.....	47 03	50	108 07
.....	.....	.....	.....	23 41	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....
5,912 40	4,954 99	9,753 14	7,040 33	12,955 15	4,661 94	551 10	64,728 71
.....	.....	.....	.....	.....	.....	.....	.....

Total revenue for 1904 ..... $291,676 97
" 1905 ..... 356,405 68

RICHARD DEVLIN, *Compiler of Canal Statistics.*

APPENDIX A.

No. 1.—General Statement showing the Quantity of each Article transported on the Welland Canal and the Amount of Revenue heretofore collected, now free, during the Season of Navigation in 1905.

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons.	Amount of Tolls, Up.	Amount of Tolls, Down.	Total Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.				
												$ cts.	$ cts.	$ cts.
Ashes, pot and pearl														
Apples														
Agricultural products not enumerated, vegetables														
Agricultural products not enumerated, animal														
Agricultural implements						552				552	552		110 40	110 40
Barley		6,593				9,197		39,662		55,432	55,432		5,543 20	5,543 20
Bricks	510							15	510	15	525	76 50	3 00	79 50
Bones														
Brimstone														
Buckwheat														
Cement and water lime					50				50		50	7 50		7 50
Clay, lime and sand	153							222	153	222	375	6 05	44 40	50 45
Coal					70,118	3,346	11,436	87,742	81,554	91,088	172,642	16,310 80	18,217 60	34,528 40
Corn						93,622		87,299		180,921	180,921		18,092 10	18,092 10
Cattle														
Cotton (raw)														
Crockery and earthenware	96	93	5		8				109	93	202	16 35	18 60	34 95
Dye wood and dye stuffs														
Fish					101				101		101	15 15		15 15
Flax and hemp														
Flour		2,587				24,054		11,871		38,512	38,512		7,702 40	7,702 40
Furniture	6		7						13		13	1 95		1 95
Gypsum														
Glass (all kinds)	208		90					25	298	25	323	44 70	5 00	49 70
Hay (pressed)						200				200	200		40 00	40 00
Hogs														
Horses														
Hides and skins, horns and hoofs		46								46	46		9 20	9 20

Ice														
Iron, railway	1,110	1,541							1,110	1,541	2,651	166 50	308 20	474 70
" pig	330							980	330	980	1,310	49 50	196 00	245 50
" all other	6,536	395	521			1		2,149	7,057	2,545	9,602	1,058 55	509 00	1,567 55
Iron ore								22,381		22,381	22,381		1,119 05	1,119 05
Kryolite chemical ore and other ore, except iron														
Lard and lard oil								2,847		2,847	2,847		569 40	569 40
Meal, all kinds	1	200				9,606			1	9,806	9,807	0 15	1,961 20	1,961 35
Meat, other than pork			15			87			15	87	102	2 25	17 40	19 65
Marble					568				568		568	85 20		85 20
Manilla	15								15		15	2 25		2 25
Molasses								883		883	883		176 60	176 60
Nails	3,141		78			1		64	3,219	65	3,284	482 85	13 00	495 85
Oats		2,728				10,892		22,452		36,072	36,072		3,607 20	3,607 20
Oil (in barrels)	397	20,123	20		115			3,659	532	23,782	24,314	79 80	4,756 40	4,836 20
Oil cake		37				228		9,854		10,119	10,119		2,023 80	2,023 80
Pease						76				76	76		7 60	7 60
Potatoes														
Pork						273				273	273		54 60	54 60
Paint	188		39			42			227	42	269	34 05	8 40	42 45
Pitch and tar								53		53	53		10 60	10 60
Rags						4				4	4		0 80	0 80
Rye								1,711		1,711	1,711		171 10	171 10
Rosin														
Flaxseed								15,694		15,694	15,694		1,569 40	1,569 40
Salt	22	22						182	22	204	226	3 30	40 80	44 10
Stone, intended for cutting														
" wrought														
" not suitable for cutting, unwrought														
Seeds, all kinds						43				43	43		4 30	4 30
Sheep														
Soda ash					15			67	15	67	82	2 25	13 40	15 65
Steel	35				865			48	900	48	948	135 00	9 60	144 60
Sugar	35		2		7,172	53		2,019	7,209	2,072	9,281	1,081 35	414 40	1,495 75
Spirits, beer, &c	349	27	25		351			712	725	739	1,464	108 75	147 80	256 55
Tobacco (raw)								204		204	204		40 80	40 80
Tallow			3		514			53	517	53	570	77 55	10 60	88 15
Tin	234		120					53	354	53	407	53 10	10 60	63 70
Turpentine	1								1	1	1	0 15		0 15
Wheat	3,280	213,542				15,483	3,579	18,574	6,859	247,593	254,458	525 73	24,420 64	24,946 37
White lead	20					7			20	7	27	3 00	1 40	4 40
Whiting	70								70		70	10 50		10 50
Wool						21				21	21		4 20	4 20
All other goods and merchandise not enumerated	11,503	240	195		30,799	2,008	5	895	42,502	3,143	45,645	6,360 40	614 78	6,975 22
Bark														
Barrels, empty						3				3	3		0 60	0 60
Boat knees														

No. (A) 1.—General Statement showing the Quantity of each Article transported on the Welland Canal, &c.—*Continued.*

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons.	Amount of Tolls, Up.	Amount of Tolls, Down.	Total Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.				
												$ cts.	$ cts.	$ cts.
Floats														
Firewood, in vessels		2,475	1,407			2,700			1,407	5,175	6,582	93 80	317 88	411 68
" rafts														
Hoops														
Hop poles														
Lumber, sawn, in vessels		5,404	2,038	62,510	475	15,726		7,390	2,513	91,030	93,543	452 20	16,377 96	16,830 16
" rafts														
Masts, spars and telegraph poles, in vessels														
" " in rafts														
Railway ties, in vessels						2,248				2,248	2,248		359 45	359 45
" rafts														
Saw logs		381								381	381		22 50	22 50
Staves and headings, barrel														
" pipe														
" W. India														
Staves, salt barrel														
Shingles						62				62	62		20 13	20 13
Split posts and fence rails, in vessels						12				12	12		4 80	4 80
" " in rafts														
Timber, square, in vessels		1,000						9,760		10,760	10,760		1,614 00	1,614 00
" rafts														
Traverses														
Woodenware and wood partly manufactured	3				598				601		601	240 40		240 40
Total freight, heretofore paying tolls, now free	28,243	257,434	4,565	62,510	111,749	190,547	15,020	349,500	159,577	859,991	1,019,568	27,587 62	111,316 29	138,903 91
Articles having paid full tolls on the St. Lawrence Canals, free:—														
Bricks	112		20						132		132			
Cement, &c.	181								181		181			
Iron, railroad	126								126		126			

" pig	112		200						312		312
" all other	2,352		1,281						3,633		3,633
Steel	167		25						192		192
Salt	150								150		150
Flour	18								18		18
Seeds, all other kinds			35						35		35
All other vegetables	127								127		127
Meats, other than pork	28								28		28
Crockery, &c	154		1						155		155
Furniture	2								2		2
Glass, all kinds	1,111		530						1,641		1,641
Manilla	93								93		93
Molasses	1								1		1
Nails	2,998		63						3,061		3,061
Oils	54		66						120		120
Paint	367								367		367
Pitch and tar	5								5		5
Rags	15								15		15
Soda ash	10		18						28		28
Sugar	1,046		122						1,168		1,168
Tin	576		352						928		928
White lead	80								80		80
Whiting	158								158		158
Whiskey, &c	203		181						384		384
All other goods and merchandise not enumerated	10,485		4,075		800				15,360		15,360
Firewood, in vessels	1,347		42,635						43,982		43,982
Grand total freight	50,321	257,434	54,169	62,510	112,549	190,547	15,020	349,500	232,059	859,991	1,092,050

Total tolls on vessels	8,950 87	9,498 18	18,449 05
" passengers	59 30	66 35	125 65
" free goods	$7,213 80		
Total tolls	36,597 79	120,880 82	157,478 61
Fines			
*Damages			
Harbour dues			266 80
Winterage			21 86
Total revenue, exclusive of hydraulic rents	36,597 79	120,880 82	157,767 27

* Amount of damages not included in above $7,378.70.

RICHARD DEVLIN,
Compiler of Canal Statistics.

Department of Railways and Canals,
Ottawa, June 15, 1906.

APPENDIX A—*Continued.*

No. (A) 2.—General Statement showing the Quantity of each Article of Through Freight transported on the Welland Canal and the Amount of Tolls heretofore collected, during the Season of Navigation in 1905.

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons.	Amount of Tolls. — Up.	Amount of Tolls. — Down.	Total Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.				
												$ cts.	$ cts.	$ cts.
Ashes, pot and pearl														
Apples														
Agricultural products not enumerated, vegetables														
Agricultural products not enumerated, animal														
Agricultural implements						552				552	552		110 40	110 40
Barley		6,593				9,197		39,642		55,432	55,432		5,543 20	5,543 20
Bricks	510							15	510	15	525	76 50	3 00	79 50
Bones														
Brimstone														
Buckwheat														
Cement and water lime					50				50		50	7 50		7 50
Clay, lime and sand	3							222	3	222	225	0 45	44 40	44 85
Coal					70,118	3,346	11,436	87,742	81,554	91,088	172,642	16,310 80	18,217 60	34,528 40
Corn						93,622		87,299		180,921	180,921		18,092 10	18,092 10
Cattle														
Cotton (raw)														
Crockery and earthenware	96	93	5		8				109	93	202	16 35	18 60	34 95
Dye wood and dye stuffs														
Fish					101				101		101	15 15		15 15
Flax and hemp														
Flour		2,587				24,054		11,871		38,512	38,512		7,702 40	7,702 40
Furniture	6		7						13		13	1 95		1 95
Gypsum														
Glass (all kinds)	208		90					25	298	25	323	41 70	5 00	49 70
Hay (pressed)						200				200	200		10 00	10 00
Hogs														
Horses														
Hides and skins, horns and hoofs		46								16	46		9 20	9 20
Ice														
Iron, railway	1,110	1,541							1,110	1,541	2,651	166 50	308 20	474 70

Iron, pig	330							980	330	980	1,310	49 50	196 00	245 50
Iron, all other	6,536	395	521			1		2,149	7,057	2,545	9,602	1,058 55	509 00	1,567 55
Iron ore								22,381		22,381	22,381		1,119 05	1,119 05
Kryolite chemical ore and other ore, except iron														
Lard and lard oil								2,847		2,847	2,847		569 40	569 40
Meal, all kinds	1	200				9,606			1	9,806	9,807	0 15	1,961 20	1,961 35
Meats, other than pork			15			87			15	87	102	2 25	17 40	19 65
Marble					568				568		568	85 20		85 20
Manilla	15								15		15	2 25		2 25
Molasses								883		883	883		176 60	176 60
Nails	3,141		78			1		64	3,219	65	3,284	482 85	13 00	495 85
Oats		2,728				10,892		22,452		36,072	36,072		3,607 20	3,607 20
Oil (in barrels)	397	20,123	20		115			3,659	532	23,782	24,314	79 80	4,756 40	4,836 20
Oil cake		37				228		9,854		10,119	10,119		2,023 80	2,023 80
Pease						76				76	76		7 60	7 60
Potatoes														
Pork						273				273	273		54 60	54 60
Paint	188		39			42			257	42	269	34 05	8 40	42 45
Pitch and tar								53		53	53		10 60	10 60
Rags						4				4	4		0 80	0 80
Rye								1,711		1,711	1,711		171 10	171 10
Flaxseed								15,694		15,694	15,694		1,569 40	1,569 40
Rosin														
Salt	22	22						182	22	204	226	3 30	40 80	44 10
Stone intended for cutting														
Stone wrought														
Stone not suitable for cutting, unwrought														
Seeds, all kinds						43				43	43		4 30	4 30
Sheep														
Soda ash					15			67	15	67	82	2 25	13 40	15 65
Steel	35				865			48	900	48	948	135 60	9 60	144 60
Sugar	35		2		7,172	53		2,019	7,209	2,072	9,281	1,081 35	414 40	1,495 75
Spirits, beer, &c	349	27	25		351			712	725	739	1,464	108 75	147 80	256 55
Tobacco (raw)								204		204	204		40 80	40 80
Tallow			3		514			53	517	53	570	77 55	10 60	88 15
Tin	234		120					53	354	53	407	53 10	10 60	63 70
Turpentine	1								1	1	1	0 15		0 15
Wheat	3,025	208,929				15,483		14,138	3,025	238,550	241,575	453 75	23,855 00	24,308 75
White lead	20					7			20	7	27	3 00	1 40	4 40
Whiting	70								70		70	10 50		10 50
Wool						21				21	21		4 20	4 20
All other goods and merchandise not enumerated	11,389	161	195		30,799	2,008	5	895	42,388	3,064	45,452	6,358 20	612 80	6,971 00
Bark														
Barrels empty						3				3	3		0 60	0 60
Boat knees														
Floats														
Firewood, in vessels			1,407			2,700			1,407	2,700	4,107	93 80	180 00	273 80

No. (A) 2.—General Statement showing the Quantity of each Article transported on the Welland Canal, &c.—*Continued.*

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons.	Amount of Tolls — Up.	Amount of Tolls. — Down.	Total Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.				
												$ cts.	$ cts.	$ cts.
Firewood, in rafts														
Hoops														
Hop poles														
Lumber, sawn, in vessels		5,404	2,038	62,510	475	15,726		7,390	2,513	91,030	93,543	452 20	16,377 96	16,830 16
" " rafts														
Masts, spars, and telegraph poles, in vessels														
Masts, spars, and telegraph poles, in rafts														
Railway ties, in vessels						2,248				2,248	2,248		359 45	359 45
" rafts														
Saw logs														
Staves and headings, barrel														
" " pipe														
" " W. India														
Staves, salt barrel														
Shingles						62				62	62		20 13	20 13
Split posts and fence rails, in vessels						12				12	12		4 80	4 80
Split posts and fence rails, in rafts														
Timber, square, in vessels		1,000						9,760		10,760	10,760		1,614 00	1,614 00
" " rafts														
Traverses														
Woodenware and wood partly manufactured	3				598				601		601	240 40		240 40
Total through freight paying tolls	27,724	249,886	4,565	62,510	111,749	190,544	11,441	345,064	155,477	848,007	1,003,486	27,507 80	110,588 29	138,096 09
Articles having paid full tolls on the St. Lawrence canals, free:—														

Bricks	112		20						132		132
Cement, &c	181								181		181
Iron, railroad	125								126		126
" pig	112		200						312		312
" all other	2,352		1,281						3,633		3,633
Steel	167		25						192		192
Salt	150								150		150
Flour	18								18		18
Seeds, all other kinds			35						35		35
All other vegetables	127								127		127
Meats, other than pork	28								28		28
Crockery, &c	154		1						155		155
Furniture	2								2		2
Glass, all kinds	1,111		530						1,641		1,641
Manilla	93								93		93
Molasses	1								1		1
Nails	2,998		63						3,061		3,061
Oils	54		66						120		120
Paint	367								367		367
Pitch and tar	5								5		5
Rags	15								15		15
Soda ash	10		18						28		28
Sugar	1,046		122						1,168		1,168
Tin	576		352						928		928
White lead	80								80		80
Whiting	158								158		158
Whiskey, &c	203		181						384		384
All other goods and merchandise not enumerated	10,485		4,075		800				15,360		15,360
Firewood, in vessels	1,347		42,635						43,982		43,982
Grand total through freight	49,802	249,886	54,169	62,510	112,540	190,547	11,441	345,064	227,961	848,007	1,075,968

Total tolls on vessels	8,567 45	9,298 97	17,866 42
" passengers	59 30	66 35	125 65
" free goods $7,213 80			
Total tolls	36,134 55	119,953 61	156,088 16

Department of Railways and Canals,
Ottawa, June 15, 1906.

RICHARD DEVLIN,
Compiler of Canal Statistics.

No. 3.—General Statement showing Quantity of each Article of Way Freight transported on the Welland Canal and the Amount of Tolls heretofore collected, now free, during the Season of Navigation in 1905.

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports		Tons.		Total Tons.	Amount of Tolls, Up.	Amount of Tolls, Down.	Total Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.				
												$ cts.	$ cts.	$ cts.
Ashes, pot and pearl														
Apples														
Agricultural products not enumerated, vegetables														
Agricultural products not enumerated, animal														
Agricultural implements														
Barley														
Bricks														
Bones														
Brimstone														
Buckwheat														
Cement and water lime														
Clay, lime and sand	150								150		150	5 60		5 60
Coal														
Corn														
Cattle														
Cotton (raw)														
Crockery and earthenware														
Dye wood and dye stuffs														
Fish														
Flax and hemp														
Flour														
Furniture														
Gypsum														
Glass (all kinds)														
Hay (pressed)														
Hogs														
Horses														

Hides and skins, horns and hoofs														
Ice														
Iron, railway														
" pig														
" all other														
Iron ore														
Kryolite chemical ore and other ore, except iron														
Lard and lard oil														
Meal, all kinds														
Meats, other than pork														
Marble														
Manilla														
Molasses														
Nails														
Oats														
Oil (in barrels)														
Oil cake														
Pease														
Potatoes														
Pork														
Paint														
Pitch and tar														
Rags														
Rye														
Flax seed														
Rosin														
Salt														
Stone intended for cutting														
" wrought														
" stone not suitable for cutting, unwrought														
Seeds, all kinds														
Sheep														
Soda ash														
Steel														
Sugar														
Spirits, beer, &c														
Tobacco (raw)														
Tallow														
Tin														
Turpentine														
Wheat	255	4,613					3,579	4,436	3,834	9,049	12,883	71 98	565 64	637 62
White lead														
Whiting														
Wool														
All other goods and merchandise not enumerated	114	79							114	79	193	2 24	1 98	4 22
Bark														

No. (A) 3.—General Statement showing Quantity of each Articles of Way Freight transported on the Welland Canal—*Concluded*,

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports		From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons.	Amount of Tolls, Up.	Amount of Tolls, Down.	Total Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.				
												$ cts.	$ cts.	$ cts.
Floats														
Firewood, in vessels		2,475								2,475	2,475		137 88	137 88
" rafts														
Hoops														
Hop poles														
Lumber, sawn, in vessels														
" rafts														
Masts, spars, and telegraph poles, in vessels														
" " rafts														
Railway ties, in vessels														
" rafts														
Saw logs		381								381	381		22 50	22 50
Staves and headings, barrel														
" " pipe														
" " W. India														
Staves, salt barrel														

Shingles														
Split posts and fence rails, in vessels														
" " rafts														
Timber, square, in vessels														
" rafts														
Traverses														
Woodenware and wood partly manufactured														
Total freight heretofore paying tolls, now free	519	7,548					3,579	4,436	4,098	11,984	16,082	79 82	728 00	807 82
Total tolls on vessels												383 42	199 21	582 63
" passengers														
Total way tolls												463 24	927 21	1,390 45

Department of Railways and Canals,
Ottawa, June 15, 1906.

RICHARD DEVLIN,
Compiler of Canal Statistics.

No. (A) 4.—GENERAL STATEMENT showing the Quantity of each Article transported on the St. Lawrence Canals and the Amount of Revenue heretofore collected, now free, during the Season of Navigation in 1905.

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons.	Amount of Tolls. — Up.	Amount of Tolls. — Down.	Total Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.				
												$ cts.	$ cts.	$ cts.
Ashes, pot and pearl	5	42							5	42	47	0 95	4 20	5 15
Apples	341	4,178							341	4,203	4,544	17 05	580 71	597 76
Agricultural products not enumerated, vegetables	873	1,773							873	1,773	2,646	100 58	260 63	361 21
Agricultural products not enumerated, animal	1,320	4,059							1,320	4,059	5,379	78 55	544 73	623 28
Agricultural implements	140	15							140	15	155	16 18	0 80	16 98
Barley	54	16,185							54	16,185	16,239	2 06	859 17	861 23
Bricks	16,987	24					190		17,177	24	17,201	828 85	0 91	829 76
Bones	1	7							1	7	8	0 04	0 90	0 94
Brimstone	1,176								1,176		1,176	115 51		115 51
Buckwheat	2	717							2	717	719	0 12	70 45	70 57
Cement and water lime	1,500	292					159		1,749	292	2,041	111 64	13 30	124 94
Clay, lime and sand	34,523	42,783					2,749		37,272	42,783	80,055	1,414 27	1,609 61	3,023 88
Coal	3,303	53,491				30		286,970	3,303	340,491	343,797	495 45	48,806 07	49,301 52
Corn	1,720	60,513						14,231	1,720	74,744	76,464	49 48	2,313 98	2,363 46
Cattle	100	435							100	435	535	6 60	30 62	37 22
Cotton (raw)		2								2	2		0 30	0 30
Crockery and earthenware	285	253	2						287	253	540	56 00	50 60	106 60
Dye wood and Dye stuffs	20								20		20	3 50		3 50
Fish	36	5							36	5	41	1 87	0 20	2 07
Flax and hemp														
Flour	2,093	9,461							2,093	9,461	11,554	143 99	497 35	641 34
Furniture	1,142	2,412							1,142	2,412	3,554	201 39	353 00	554 39
Gypsum														
Glass (all kinds)	2,243	228	777						3,020	228	3,248	601 36	45 15	646 51
Hay (pressed)	3,310	4,003							3,310	4,003	7,313	124 36	219 50	343 86
Hogs	21	2							21	2	23	0 84	0 15	0 99
Horses	432	888							432	888	1,250	22 68	44 09	66 77

Hides and skins, horns and hoofs	9	13							9	13	22	1 02	1 36	2 38	
Ice															
Iron, railway	559	32							559	32	591	25 54	3 46	29 00	
" pig	1,495	541	200				1,336		3,031	541	3,572	258 83	24 79	283 62	
" all other	27,414	3,417	2,230				171	39	29,815	3,456	33,271	2,527 61	249 15	2,776 76	
Iron ore															
Kryolite		287								287	287		32 29	32 29	
Lard and lard oil	77	173							77	173	250	10 20	22 17	33 37	
Meal, all kinds	73	661							73	661	734	4 37	27 63	32 00	
Meat, other than pork	78	38							78	38	116	11 19	5 37	16 56	
Marble															
Manilla	141	5							141	5	146	28 18	1 00	29 18	
Molasses	433	219							433	219	652	70 80	25 32	96 12	
Nails	5,264	375	183						5,447	375	5,822	1,077 56	66 77	1,144 33	
Oats	336	20,655						2,520	336	23,175	23,511	10 41	1,057 78	1,068 19	
Oil (in barrels)	2,231	1,284	126				34		2,391	1,284	3,675	456 22	240 72	696 94	
Oil cake	5	889							5	889	894	0 46	44 45	44 91	
Pease	10	681							10	681	691	0 66	68 04	68 70	
Potatoes	84	54							84	54	138	9 08	3 43	12 51	
Pork	366	210							366	210	576	35 28	14 88	50 16	
Paint	1,573	463	34						1,607	463	2,070	315 00	86 60	401 60	
Pitch and tar	154	9	62				95		311	9	320	45 59	1 20	46 79	
Rags	176	35	4				156		336	35	371	39 70	7 00	46 70	
Rye		1,682								1,682	1,682		42 05	42 05	
Flax seed															
Rosin	11	9					1,380		1,391	9	1,400	71 13	1 20	72 33	
Salt	3,534	102					168		3,702	102	3,804	384 41	8 41	392 82	
Stone intended for cutting	1								1		1	0 06		0 06	
" wrought	2	175							2	175	177	0 20	8 75	8 95	
" not suitable for cutting, unwrought	75	12,142							75	12,142	12,217	11 25	242 55	253 80	
Seeds, all kinds	3,597	1	35						3,632	1	3,633	142 08	0 04	142 12	
Sheep	76	5							76	5	81	3 20	0 31	3 51	
Soda ash	884		44				20		948		948	183 10		183 10	
Steel	2,333	219							2,333	219	2,552	304 33	32 41	336 74	
Sugar	8,881	243	2,319						11,200	243	11,443	2,216 58	22 20	2,238 78	
Spirits, beer, &c	1,220	725	289						1,509	725	2,234	277 75	128 11	405 86	
Tobacco (raw)	6	3							6	3	9	0 81	0 45	1 26	
Tallow		9								9	9		1 05	1 05	
Tin	3,138	40	826						3,964	40	4,004	779 93	8 00	787 93	
Turpentine	21								21		21	4 05		4 05	
Wheat	1,466	210,561	720						2,186	210,561	212,747	196 29	6,547 91	6,744 20	
White lead	752	37							752	37	789	148 08	6 65	154 73	
Whiting	603	6							603	6	609	119 98	1 05	121 03	
Wool	1								1		1	0 04		0 04	
All other goods and merchandise not enumerated	39,744	15,223	6,371		303	835	527	356	46,945	16,414	63,359	7,696 27	2,129 25	9,825 52	
Bark															
Barrels, empty	695	1,026							695	1,026	1,721	70 35	51 47	121 82	

No. (A) 4—General Statement showing the Quantity of each Article transported on the St. Lawrence Canals, &c.—*Continued.*

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total, Tons.	Amount of Tolls, Up.	Amount of Tolls, Down.	Total Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.				
												$ cts.	$ cts.	$ cts.
Floats														
Firewood, in vessels	24,514	3,157	123,008						147,522	3,157	150,679	10,018 30	88 90	10,107 20
Lumber, sawn, in vessels	44,155	8,772	7,053		5				51,213	8,772	59,985	2,061 29	334 81	2,396 10
Masts, spars and telegraph poles, in vessels		390								390	390		29 00	29 00
Masts, spars and telegraph poles, in rafts		10,967								10,967	10,967		274 50	274 50
Railway ties, in vessels	699	15	3,717						4,416	15	4,431	386 10	0 38	386 48
" rafts														
Saw logs		3,858								3,858	3,858		240 00	240 00
Shingles	2	9							2	9	11	0 33	1 50	1 83
Timber square, in vessels	11	82							11	82	93	0 70	1 10	1 80
" rafts	738	10,853							738	10,853	11,591	20 25	282 08	302 33
Traverses														
Woodenware and wood partly manufactured	73	483							73	483	556	20 60	96 40	117 00
Total freight, heretofore paying toll, now free	249,427	572,571	148,000		308	865	6,985	304,116	404,720	817,552	1,222,272	34,438 48	68,870 36	103,308 84
Articles having passed the full length of the Welland Canal, free :—														
Barley		5,885						37,722		43,607	43,607			
Clay, lime and sand								32		22	22			
Corn		10,679		2,144				71,808		84,631	84,631			
Crockery and earthenware		93								93	93			
Flax seed								15,694		15,694	15,694			
Flour		2,760						11,871		14,571	14,571			
Glass								21		21	21			
Iron, railway		10								10	10			
" all other		35						349		384	384			

Lard and lard-oil		14						2,833		2,847	2,847
Meal		270								270	270
Merchandise		109						742		851	851
Molasses								820		820	820
Nails		22						42		64	64
Oats		8,502						12,902		21,404	21,404
Oil-cake		37						9,192		9,229	9,229
Oils		15,608						5,092		20,700	20,700
Pitch and tar								53		53	53
Rye								1,711		1,711	1,711
Salt		21						147		168	168
Soda ash								59		59	59
Steel								48		48	48
Sugar								2,019		2,019	2,019
Tallow								53		53	53
Tin								53		53	53
Tobacco								204		204	204
Wheat		181,056						9,449		190,505	190,505
Whiskey, &c		24						611		635	635
Lumber, sawn, in vessels		852				931		2,174		3,957	3,957
Square timber "		1,260								1,260	1,260
Iron ore		3,837								3,837	3,837
Coal		7,986						21,365		29,351	29,351
Coal, free per O. C	79,936		493				1,023		81,452		81,452
Grand total freight	329,363	751,571	148,493	2,144	308	1,796	8,008	571,172	486,172	1,266,683	1,752,855

Total tolls on vessels		10,841 50	9,039 59	19,881 09
" passengers		1,750 80	3,670 00	5,420 80
" Free goods	$56,223.10			
Total tolls		47,030 78	81,579 95	128,610 73
Fines				65 00
* Damages				
Wharfage, storage and winterage				566 78
Other receipts				804 18
Total revenue, exclusive of hydraulic rent				130,046 69

* Amount of damages not included in above, $440.86.

RICHARD DEVLIN,
Compiler of Canal Statistics.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, June 15, 1906

No. (A.) 5.—General Statement showing the Quantity of each Through Article transported on the St. Lawrence Canals and the Amount of Tolls heretofore collected, now free, during the Season of Navigation in 1905.

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports.		Tons..		Total tons.	Amount of Tolls. — Up.	Amount of Tolls. — Down.	Total Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.				
												$ cts.	$ cts.	$ cts.
Ashes, pot and pearl		14								14	14		2 80	2 80
Apples	30	3,756							30	3,756	3,786	4 50	563 40	567 90
Agricultural products not enumerated, vegetables	564	1,723							564	1,723	2,287	84 60	258 45	343 05
Agricultural products not enumerated, animals	225	3,458							225	3,458	3,683	33 75	518 70	552 45
Agricultural implements														
Barley		6,060								6,060	6,060		606 00	606 00
Bricks	1,449								1,449		1,449	217 35		217 35
Bones		5								5	5		75	75
Brimstone														
Buckwheat		699								699	699		69 90	69 90
Cement and water lime	247	20							247	20	267	37 05	3 00	40 05
Clay, lime and sand	2								2		2	30		30
Coal	3,303	49,341						266,897	3,303	316,238	319,541	495 45	47,405 68	47,901 13
Corn	10	330						3,159	10	3,489	3,499	1 50	348 90	350 40
Cattle														
Cotton (raw)		2								2	2		30	30
Crockery and earthenware	222	253	2						224	253	477	44 80	50 60	95 40
Dye wood and dye stuffs	15								15		15	3 00		3 00
Fish	1								1		1		15	15
Flax and hemp														
Flour	30	759							30	759	789	4 50	113 85	118 35
Furniture	808	1,505							808	1,505	2,313	161 60	301 00	462 60
Gypsum														
Glass (all kinds)	2,081	225	777						2,858	225	3,083	571 60	45 00	616 60
Hay (pressed)														
Hogs														
Horses	5	64							5	64	69	75	9 60	10 35
Hides and skins, horns and hoofs	5	6							5	6	11	75	90	1 65
Ice														

Iron, railway	33	15							33	15	48	4 95	2 25	7 20
" pig	972	40	200						1,172	40	1,212	175 80	6 00	181 80
" all other	9,576	1,005	2,230					39	11,806	1,044	12,850	1,770 90	156 60	1,927 50
" ore														
Lard and lard oil	52	137							52	137	189	7 80	20 55	28 35
Meal, all kinds	8	5							8	5	13	1 20	75	1 95
Meat, other than pork	68	35							68	35	103	10 20	5 25	15 45
Marble														
Manilla	139	5							139	5	144	27 80	1 00	28 80
Molasses	13	93							13	93	106	2 60	18 60	21 20
Nails	4,806	308	183						4,989	308	5,297	997 80	61 60	1,059 40
Oats		3,632						2,520		6,152	6,152		615 20	615 20
Oil (in barrels)	1,784	1,174	126						1,910	1,174	3,084	382 00	234 80	616 80
Oil cake														
Pease		680								680	680		68 00	68 00
Potatoes	23	5							23	5	28	3 45	75	4 20
Pork	25	44							25	44	69	3 75	6 60	10 35
Paint	1,438	423	34						1,472	423	1,895	294 40	84 60	379 00
Pitch and tar	6	5	62						68	5	73	13 60	1 00	14 60
Rags	88	35	4						92	35	127	18 40	7 00	25 40
Rye														
Rosin	4	5							4	5	9	80	1 00	1 80
Salt	722	40							722	40	762	108 30	6 00	114 30
Stone intended for cutting														
Stone, wrought														
Stone, not suitable for cutting, unwrought														
Seeds, all kinds	6		35						41		41	6 15		6 15
Sheep														
Soda ash	860		44						904		904	180 80		180 80
Steel	1,588	215							1,588	215	1,803	238 20	32 25	270 45
Sugar	8,226	67	2,319						10,545	67	10,612	2,109 00	13 40	2,122 40
Spirits, beer, &c	674	604	289						963	604	1,567	192 48	120 80	313 28
Tobacco (raw)	5	3							5	3	8	75	45	1 20
Tallow		5								5	5		75	75
Tin	2,920	40	826	6					3,746	40	3,786	749 20	8 00	757 20
Turpentine	6								6		6	1 20		1 20
Wheat	400	17,119	720						1,120	17,119	18,239	168 00	1,711 90	1,879 90
White lead	524	32							524	32	556	104 80	6 40	111 20
Whiting	577	5							577	5	582	115 40	1 00	116 40
Wool														
All other goods and merchandise not enumerated	24,188	7,822	6,371					356	30,559	8.178	38,737	6,109 02	1,635 60	7,744 62
Bark														
Barrels, empty	96								96		96	18 62		18 62
Boat knees														
Floats														
Firewood, in vessels	21,289		123,008						144,297		144,297	9,915 80		9,915 80
" rafts														
Hoops														

No. (A) 5.—General Statement showing the Quantity of each Through Article transported on the St. Lawrence Canals—*Continued*.

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons.	Amount of Tolls. — Up.	Amount of Tolls. — Down.	Total Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down	Up.	Down.	Up.	Down.				
												$ cts.	$ cts.	$ cts.
Hop poles														
Lumber, sawn, in vessels	5,196	1,451	7,053						12,249	1,415	13,700	1,069 06	130 50	1,199 56
" rafts														
Masts, spars, and telegraph poles, in vessels		350								350	350		28 00	28 00
" " rafts														
Railway ties, in vessels	699		3,717						4,416		4,416	386 10		386 10
" rafts														
Saw logs		2,100								2,100	2,100		200 00	200 00
Staves and headings, barrel														
" " pipe														
" " W. India														
Staves, salt barrel														
Shingles														
Split posts and fence rails, in vessels														
" " rafts														
Timber, square, in vessels		2								2	2		10	10
" " rafts		320								320	320		32 00	32 00
Traverses														
Woodenware and wood partly manufactured	32	4							32	4	36	12 40	1 60	14 00
Total freight heretofore paying tolls, now free	96,040	106,045	148,000					272,971	244,040	379,016	623,056	26,862 38	55,519 13	82,381 51
Articles having passed the full length of the Welland Canal, free :—														
Barley		5,885						37,722		43,607	43,607			
Clay, lime and sand								22		22	22			
Corn		10,697		2,144				71,381		84,204	84,204			
Crockery and earthenware		93								93	93			
Flaxseed								15,694		15,694	15,694			
Flour		2,700						11,871		14,571	14,571			

Glass								21		21	21			
Iron, railway		10								10	10			
" all other		35						349		384	384			
Lard and lard oil		14						2,833		2,847	2,847			
Meal		270								270	270			
Merchandise		109						742		851	851			
Molasses								820		820	820			
Nails		22						42		64	64			
Oats		8,502						12,902		21,404	21,404			
Oil-cake		37						9,192		9,229	9,229			
Oils		15,608						5,092		20,700	20,700			
Pitch and tar								53		53	53			
Rye								1,711		1,711	1,711			
Salt		21						147		168	168			
Soda-ash								59		59	59			
Steel								48		48	48			
Sugar								2,019		2,019	2,019			
Tallow								53		53	53			
Tin								55		53	53			
Tobacco								204		204	204			
Wheat		181,056						9,449		190,505	190,505			
Whiskey, &c		24						611		635	635			
Lumber sawn (in vessels)		852				931		2,174		3,957	3,957			
Square timber "		1,260								1,260	1,260			
Iron ore		3,837								3,837	3,837			
Coal		7,986						21,365		29,351	29,351			
Coal, free per O.C.	8,518								8,518		8,518			
Grand total, freight	104,558	345,045	148,000	2,144		931		479,600	252,558	827,720	1,080,278			

Total tolls on vessels		7,040 57	6,726 24	13,766 81
" passengers		1,006 07	2,451 40	3,457 47
" Free goods	$51,578 70			
Total through tolls		34,909 02	64,696 77	99,605 79

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, June 15, 1906.

RICHARD DEVLIN,
Compiler of Canal Statistics.

APPENDIX A—*Continued.*

No. (A) 6.—General Statement showing the Quantity of each Article of Way Freight transported on the St. Lawrence Canals, and the Amount of Tolls heretofore collected, now free, during the Season of Navigation in 1905.

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons.	Amount of Tolls. — Up.	Amount of Tolls. — Down.	Total Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.				
												$ cts.	$ cts.	$ cts.
Ashes, pot and pearl	5	28							5	28	33	0 95	1 40	2 35
Apples	311	447							311	447	758	12 55	17 31	29 86
Agricultural products not enumerated, vegetables	309	50							309	50	359	15 98	2 18	18 16
Agricultural products not enumerated, animal	1,095	601							1,095	601	1,696	44 80	26 03	70 83
Agricultural implements	140	15							140	15	155	16 18	0 80	16 98
Barley	54	10,125							54	10,125	10,179	2 06	253 17	255 23
Bricks	15,538	24					190		15,728	24	15,752	611 50	0 91	612 41
Bones	1	2							1	2	3	0 04	0 15	0 19
Brimstone	1,176								1,176		1,176	115 51		115 51
Buckwheat	2	18							2	18	20	0 12	0 55	0 67
Cement and water lime	1,343	272					159		1,502	272	1,774	74 59	10 30	84 89
Clay, lime and sand	34,521	42,783					2,749		37,270	42,783	80,053	1,413 97	1,609 61	3,023 58
Coal		4,153				30		20,073		24,256	24,256		1,400 39	1,400 39
Corn	1,710	60,183						11,072	1,710	71,255	72,965	47 98	1,965 08	2,013 06
Cattle	100	435							100	435	535	6 60	30 62	37 22
Cotton, raw														
Crockery and earthenware	63								63		63	11 20		11 20
Dye wood and dye stuffs	5								5		5	0 50		0 50
Fish	35	5							35	5	40	1 72	0 20	1 92
Flax and hemp														
Flour	2,063	8,702							2,063	8,702	10,765	139 49	383 50	522 99
Furniture	334	907							334	907	1,241	39 79	52 00	91 79
Gypsum														
Glass, all kinds	162	3							162	3	165	29 76	0 15	29 91
Hay, pressed	3,310	4,003							3,310	4,003	7,313	124 36	219 50	343 86
Hogs	21	2							21	2	23	0 84	0 15	0 99
Horses	427	764							427	764	1,191	21 93	34 49	56 42

Hides and skins, horns and hoofs	4	7							4	7	11	0 27	0 46	0 73
Ice														
Iron, railway	526	17							526	17	543	20 59	1 21	21 80
" pig	523	501					1,336		1,859	501	2,360	83 03	18 79	101 82
" all other	17,838	2,412					171		18,009	2,412	20,421	756 71	92 55	849 26
" ore														
Kryolite		287								287	287		32 29	32 29
Lard and lard oil	25	36							25	36	61	2 40	1 62	4 02
Meal, all kinds	65	656							65	656	721	3 17	26 88	30 05
Meat, other than pork	10	3							10	3	13	0 99	0 12	1 11
Marble														
Manilla	2								2		2	0 38		0 38
Molasses	420	126							420	126	546	68 20	6 72	74 92
Nails	458	67							458	67	525	79 76	5 17	84 93
Oats	336	17,023							336	17,023	17,359	10 41	442 58	452 99
Oil, in barrels	447	110					34		481	110	591	74 22	5 92	80 14
Oil cake	5	889							5	889	894	0 46	44 45	44 91
Pease	10	1							10	1	11	0 66	0 04	0 70
Potatoes	61	49							61	49	110	5 63	2 68	8 31
Pork	341	166							341	166	507	31 53	8 28	39 81
Paint	135	40							135	40	175	20 60	2 00	22 60
Pitch and tar	148	4					95		243	4	247	31 99	0 20	32 19
Rags	88						156		244		244	21 30		21 30
Rye		1,682								1,682	1,682		42 05	42 05
Rosin	7	4					1,380		1,387	4	1,391	70 33	0 20	70 53
Flax seed														
Salt	2,812	62					168		2,980	62	3,042	276 11	2 41	278 52
Stone intended for cutting	1								1		1	0 06		0 06
" wrought	2	175							2	175	177	0 20	8 75	8 95
" not suitable for cutting, unwrought	75	12,142							75	12,142	12,217	11 25	242 55	253 80
Seeds, all kinds	3,591	1							3,591	1	3,592	135 93	0 04	135 97
Sheep	76	5							76	5	81	3 20	0 31	3 51
Soda ash	24						20		44		44	2 30		2 30
Steel	745	4							745	4	749	66 13	0 16	66 29
Sugar	655	176							655	176	831	107 58	8 80	116 38
Spirits, beer, &c	546	121							546	121	667	85 27	7 31	92 58
Tobacco, raw	1								1		1	0 06		0 06
Tallow		4								4	4		0 30	0 30
Tin	218								218		218	30 73		30 73
Turpentine	15								15		15	2 85		2 85
Wheat	1,066	193,442							1,066	193,442	194,508	28 29	4,836 01	4,864 30
White lead	228	5							228	5	233	43 28	0 25	43 53
Whiting	26	1							26	1	27	4 58	0 05	4 63
Wool	1								1		1	0 04		0 04
All other goods and merchandise not enumerated	15,556	7,401			303	835	527		16,386	8,236	24,622	1,587 25	493 65	2,080 90
Bark														
Barrels, empty	599	1,026							599	1,026	1,625	51 73	51 47	103 20

No. (A) 6.—General Statement showing the Quantity of each Article of Way Freight transported on the St. Lawrence Canals—*Continued.*

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports-		Tons.		Total Tons.	Amount of Tolls. — Up.	Amount of Tolls. — Down.	Total Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.				
												$ cts.	$ cts.	$ cts.
Boat knees														
Floats														
Firewood, in vessels	3,225	3,157							3,225	3,157	6,382	102 50	88 90	191 40
" rafts														
Hoops														
Hop poles														
Lumber, sawn, in vessels	38,959	7,321			5				38,964	7,321	46,285	992 23	204 31	1,196 54
" rafts														
Masts, spars and telegraph poles, in vessels		40								40	40		1 00	1 00
Masts, spars and telegraph poles, in rafts		10,967								10,967	10,967		274 50	274 50
Railway ties, in vessels		15								15	15		0 38	0 38
" rafts														
Saw logs		1,758								1,758	1,758		40 00	40 00
Staves and headings, barrel														
" pipe														
" W. India														
Staves, salt barrel														
Shingles	2	9							2	9	11	0 33	1 50	1 83
Split posts and fence rails, in vessels														
Split posts and fence rails, in rafts														
Timber, square, in vessels	11	80							11	80	91	0 70	1 00	1 70
" rafts	738	10,533							738	10,533	11,271	20 25	250 08	270 33
Traverses														
Woodenware and wood partly manufactured	41	479							41	479	520	8 20	94 80	103 00
Total freight heretofore paying tolls, now free	153,387	406,526			308	865	6,985	31,145	160,680	438,536	599,216	7,576 10	13,351 23	20,927 33

Coal, free, per Order in Council	71,418		493				1,023		72,934		72,934			
Corn, free, having passed through Welland Canal								427		427	427			
Grand total, way freight	224,805	406,526	493		308	865	8,008	31,572	233,614	438,963	672,577			

Total tolls on vessels		3,800 93	2,313 35	6,114 28
" passengers		744 73	1,218 60	1,963 33
" free goods	$4,624 40			
Total way tolls		12,121 76	16,883 18	29,004 94

RICHARD DEVLIN,
Compiler of Canal Statistics.

Department of Railways and Canals,
Ottawa, June 15, 1906.

APPENDIX A—*Continued.*

No. (A) 7.—General Statement showing the Quantity of each Article transported on the Ottawa Canals and the Amount of Revenue heretofore collected, now free, during the Season of Navigation in 1905.

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons.	Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.		
												$ cts.
Ashes, pot and pearl												
Apples		340								340	340	19 87
Agricultural products not enumerated, vegetables		4								4	4	0 28
" " animal	10	2,814							10	2,814	2,824	251 14
Agricultural implements	1	18							1	18	19	2 07
Barley												
Bricks												
Bones		7								7	7	0 50
Brimstone												
Buckwheat	1	1							1	1	2	0 12
Cement and water lime		1								1	1	0 06
Clay, lime and sand		14,080								14,080	14,080	603 35
Coal												
Corn		1								1	1	0 06
Cattle	8	726							8	726	734	61 33
Cotton (raw)												
Crockery and earthenware		12								12	12	2 28
Dye wood and dye stuffs												
Fish	1	10							1	10	11	0 66
Flax and hemp		57								57	57	3 29
Flour		107								107	107	9 01
Furniture		79								79	79	10 12
Gypsum												
Glass (all kinds)		46								46	46	8 74
Hay (pressed)		4,433								4,433	4,433	413 23
Hogs	2	124							2	124	126	9 90
Horses	9	212							9	212	221	13 42
Hides and skins, horns and hoofs	1	14							1	14	15	1 13
Ice												

Iron, railway													
" pig													
" all other		24								24	24	1	59
Iron ore													
Kryolite chemical ore and other ore, except iron													
Lard and lard oil													
Meal, all kinds													
Meats, other than pork													
Marble													
Manilla													
Molassses		5								5	5	0	95
Nails													
Oats		1,016								1,016	1,016	92	72
Oil (in barrels)		28								28	28	5	14
Oil cake													
Pease													
Potatoes	3	279							3	279	282	16	60
Pork		5								5	5	0	38
Paint		3								3	3	0	57
Pitch and tar		26								26	26	4	94
Rags	1	135							1	135	136	24	58
Rye													
Flax seed													
Rosin													
Salt	100								100		100	9	75
Stone intended for cutting													
" wrought		1								1	1	0	10
" not suitable for cutting, unwrought													
Seeds, all kinds													
Sheep	1	447							1	447	448	40	78
Soda ash													
Steel													
Sugar													
Spirits, beer, &c	2	49							2	49	51	5	27
Tobacco (raw)													
Tallow		8								8	8	0	80
Tin		1								1	1	0	10
Turpentine													
Wheat													
White lead													
Whiting													
Wool													
All other goods and merchandise not enumerated	10	2,742							10	2,743	2,753	487	10
Bark													
Barrels, empty		80								80	80	14	75
Boat knees													
Floats		35,400								35,400	35,400	297	46
Firewood, in vessels		11,669								11,669	11,669	452	34
" " rafts													
Hoops	1	7							1	7	8		71

No. (A) 7.—General Statement showing the Quantity of each Article transported on the Ottawa Canals, and the Amount of Revenue Collected, &c.— —*Concluded.*

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons.	Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.		
												$ cts.
Hop poles												
Lumber, sawn, in vessels	72	218,204		74,478					72	292,682	292,754	22,883 20
" " rafts		46								46	46	0 81
Masts, spars, and telegraph poles, in vessels												
" " rafts												
Railway ties, in vessels		49								49	49	6 63
" rafts												
Saw logs												
Staves and headings, barrel												
" " pipe												
" " West India												
Staves, salt barrel												
Shingles		14								14	14	0 93
Split posts and fence rails, in vessels												
" " rafts												
Timber, square, in vessels	40	240							40	240	280	1 98
" " rafts		3,035								3,035	3,035	34 03
Traverses												
Woodenware and wood partly manufactured												
Total freight heretofore paying tolls, now free	263	296,600		74,478					263	371,078	371,341	25,794 77
Free, per Order in Council—												
Floats		17,601								17,601	17,601	
Lumber sawn (in rafts)		541								541	541	
Shingles		8								8	8	
Timber, square		1,280								1,280	1,280	
Freight, grand total	263	316,030		74,478					263	390,508	390,771	

Total tolls on vessels		2,893 96
" passengers		260 70
" free goods	$171 48	
Total tolls		28,949 43
Fines		4 00
Wharfage and winterage		27 60
Other receipts		16 00
Total revenue, exclusive of hydraulic rents		28,997 03

Damages $7 not included in above.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, June 15, 1906.

RICHARD DEVLIN,
Compiler of Canal Statistics.

APPENDIX A—*Continued.*

No. (A) 8.—General Statement showing the Quantity of each Article transported on the Chambly Canal, and the Amount of Revenue heretofore collected, now free, during the Season of Navigation in 1905.

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons.	Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.		
												$ cts.
Ashes, pot and pearl												
Apples	19	1,290							19	1,293	1,312	89 93
Agricultural products not enumerated, vegetables												
" " " animal		18	561						561	18	579	56 73
Agricultural implements	47	38							47	38	85	3 18
Barley												
Bricks	348							2,171	348	2,171	2,519	277 21
Bones												
Brimstone												
Buckwheat												
Cement and water lime	93							701	93	701	794	73 24
Clay, lime and sand	720							9,692	720	9,692	10,412	1,048 63
Coal	840	5						74,971	840	74,976	75,816	7,279 69
Corn		2								2	2	20
Cattle	8	137							8	137	145	5 06
Cotton (raw)												
Crockery and earthenware	2	275							2	275	277	24 25
Dye wood and dye stuffs												
Fish												
Flax and hemp												
Flour	520	64							520	64	584	19 74
Furniture		7								7	7	24
Gypsum												
Glass (all kinds)												
Hay (pressed)	277	9,164	7,990						8,267	9,164	17,431	885 37
Hogs												
Horses	7	10							7	10	17	65
Hides and skins, horns and hoofs												
Ice												
Iron, railway	44	3						855	44	858	902	87 08
" pig								1,176		1,176	1,176	117 60
" all other	98	56						1	98	57	155	5 33

Iron ore								17,682		17,682	17,682	892	35
Kryolite chemical ore and other ore, except iron								420		420	420	23	10
Lard and lard oil		2								2	2		07
Meal, all kinds		2								2	2		07
Meats, other than pork													
Marble													
Manilla		1								1	1		04
Molasses	64	4							64	4	68	2	33
Nails	88	16							88	16	104	3	63
Oats	31	1,860							31	1,860	1,891	63	19
Oil (in barrels)	75	8						22	75	30	105	5	37
Oil cake													
Pease	9	2							9	2	11		37
Potatoes	5	2							5	2	7		24
Pork	1	1							1	1	2		08
Paint		1								1	1		04
Pitch and tar		60						668		728	728	72	80
Rags													
Rye													
Flaxseed													
Rosin	1							2,118	1	2,118	2,119	260	92
Salt	125	147						336	125	483	608	43	02
Stone intended for cutting													
" wrought													
" not suitable for cutting, unwrought								1,533		1,533	1,533	107	92
Seeds, all kinds	30								30		30	1	03
Sheep		81								81	81	2	88
Soda ash													
Steel													
Sugar	129	29							129	29	158	5	45
Spirits, beer, &c.	20	17							20	17	37	1	27
Tobacco (raw)													
Tallow													
Tin													
Turpentine													
Wheat													
White lead													
Whiting													
Wool													
All other goods and merchandise not enumerated	1,234	1,042	709					1,945	1,943	2,987	4,930	342	33
Bark													
Barrels, empty	1	63							1	63	64	5	30
Boat knees													
Floats			333						333		333	11	10
Fire wood, in vessels		282	225,078						225,078	282	225,360	7,639	87
" rafts													
Hoops													
Hop poles													
Lumber, sawn, in vessels	668	16	77,346					96	78,014	112	78,126	4,416	20
" " rafts													

No. (A) 8.—General Statement showing the Quantity of each Article transported on the Chambly Canal, &c.—*Concluded.*

Articles.	From Canadian to Canadian Ports.		From Canadian to United States. Ports.		From United States to United States. Ports.		From United States to Canadian Ports.		Tons.		Total Tons.	Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.		
												$ cts.
Masts, spars, and telegraph poles, in vessels												
" " rafts		32								32	32	1 07
Railway ties, in vessels												
" rafts												
Saw-logs												
Staves and headings, barrel												
" " pipe												
" " West India												
Staves, salt barrel												
Shingles	161	50							161	50	211	22 34
Split posts and fence rails, in vessels								210		210	210	21 00
" " rafts												
Timber square, in vessels												
" rafts												
Traverses												
Woodenware and wood partly manufactured												
Total freight heretofore paying tolls, now free	5,665	14,787	312,017					114,597	317,682	129,387	447,069	23,919 51
Total tolls on vessels												4,424 53
" passengers												47 84
Total tolls												28,391 88
*Damages $12.00												
Fines												
Other receipts												
Total revenue exclusive of hydraulic rents												28,391 88

Department of Railways and Canals,
Ottawa, June 15, 1906.

RICHARD DEVLIN,
Compiler of Canal Statistics.

No. (A) 9.—General Statement showing the Quantity of each Article transported on the Rideau Canal and the Amount of Tolls heretofore Collected, now Free, during the Season of Navigation in 1905.

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons.	Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.		
												$ cts.
Ashes, pot and pearl	10								10		10	0 87
Apples	33	226							33	226	259	8 05
Agricultural products not enumerated, vegetables	12	35							12	35	47	1 26
" " animals	47	2,781							47	2,781	2,828	204 06
Agricultural implements	92	184							92	184	276	33 04
Barley		80						25		105	105	2 47
Bricks	512	80	100						612	80	692	23 89
Bones												
Brimstone												
Buckwheat												
Cement and water lime	326	203							326	203	529	13 92
Clay, lime and sand	389	3,982							389	3,982	4,371	102 13
Coal		281						10,919		11,200	11,200	432 13
Corn	1	3							1	3	4	0 12
Cattle	1								1		1	0 03
Cotton (raw)												
Crockery and earthenware	4	22							4	22	26	2 34
Dye wood and dye stuffs	5								5		5	0 44
Fish	3								3		3	0 07
Flax and hemp		7								7	7	0 17
Flour	363	284							363	284	647	18 79
Furniture	43	45							43	45	88	8 21
Gypsum												
Glass (all kinds)	91	21							91	21	112	12 41
Hay (pressed)	663								663		663	17 13
Horses	2	5							2	5	7	0 20
Hides and skins, horns and hoofs		1								1	1	0 03
Iron, railway	19	1							19	1	20	0 48
" pig	175								175		175	6 18
" all other	628	16							628	16	644	19 72

No. (A) 9.—General Statement showing the Quantity of each Article transported on the Rideau Canal, &c.—*Continued.*

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons.	Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.		
												$ cts.
Iron ore												
Kryolite and other ore, except iron		125	140						140	125	265	493
Lard and lard oil	25								25		25	0 69
Meal, all kinds	3								3		3	0 09
Meat, other than pork	13								13		13	0 36
Marble												
Manilla	1	5							1	5	6	0 53
Molasses	115	3							115	3	118	13 32
Nails	436	17							436	17	453	46 69
Oats		508								508	508	21 41
Oil (in barrels)	300	121							300	121	421	37 81
Oil cake												
Pease												
Potatoes	31	4							31	4	35	0 98
Pork	175	5							175	5	180	5 63
Paint	105	4							105	4	109	11 00
Pitch and tar	87	15							87	15	102	8 89
Rags	24	55							24	55	79	6 92
Rye												
Rosin	7								7		7	0 61
Salt	2,017	187							2,017	187	2,204	58 63
Stone intended for cutting												
" wrought	2	1							2	1	3	0 27
" not suitable for cutting, unwrought												
Seeds, all kinds		2								2	2	0 05
Sheep												
Soda ash												
Steel	119								119		119	4 50
Sugar	284	111							284	111	395	41 51
Spirits, beer, &c	355	151							355	151	506	44 94
Tobacco (raw)	12								12		12	0 29
Tallow												
Tin	7								7		7	0 62
Turpentine	15								15		15	1 31
Wheat	63	914							63	914	977	22 81

White lead	173	5							173	5	178	15	86
Whiting	14								14		14	1	23
Wool													
All other goods and merchandise not enumerated	2,133	1,147							2,133	1,147	3,280	309	01
Bark	9								9		9	0	82
Barrels, empty	31	27	3						34	27	61	4	89
Boat knees													
Floats	200								200		200	3	50
Firewood, in vessels	4,671	1,548							4,671	1,548	6,219	126	17
" rafts													
Hoops													
Hop poles													
Lumber, sawn, in vessels	6,081	8,905	806	3,694					6,887	12,599	19,486	1,114	73
" rafts	4	87							4	87	91	3	56
Masts, spars, and telegraph poles, in vessels	2								2		2	0	06
" " rafts													
Railway ties, in vessels	523								523		523	20	63
" rafts													
Saw logs													
Staves and headings, barrel													
" pipe													
" West India													
Staves, salt barrel													
Shingles	270	29						5	270	34	304	67	93
Split posts and fence rails, in vessels	10								10		10	0	77
" " rafts													
Timber, square, in vessels													
" " rafts													
Traverses	200								200		200	1	27
Woodenware and wood partly manufactured	3								3		3	0	90
Total freight heretofore paying tolls, now free	21,939	22,233	1,049	3,694				10,949	22,988	36,876	59,85[illegible]	2,911	17

Total tolls on vessels	2,006 60
" passengers	671 66
Total tolls	5,589 43
Wharfage	8 40
Winterage	161 00
Other receipts	16 00
Total revenue, exclusive of hydraulic rents	5,774 83

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, June 15, 1906.

RICHARD DEVLIN,
Compiler of Canal Statistics.

APPENDIX A—*Continued.*

No. (A) 10.—General Statement showing the Quantity of each Article transported on the St. Peter's Canal and the Amount of Revenue heretofore collected, now free, during the Season of Navigation in 1905.

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons.	Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.		
												$ cts.
Ashes, pot and pearl												
Apples	110								110		110	1 10
Agricultural products not enumerated, vegetables	247								247		247	2 47
" " " animal	4								4		4	0 04
Agricultural implements												
Barley	11								11		11	0 11
Bricks	2,221	5							2,221	5	2,226	22 26
Bones		37								37	37	0 37
Brimstone												
Buckwheat												
Cement and water lime	227	718							227	718	945	9 45
Clay, lime and sand	107	130							107	130	237	2 37
Coal	132	43,609							132	43,609	43,741	437 41
Corn												
Cattle	22								22		22	0 22
Cotton (raw)												
Crockery and earthenware	13								13		13	0 13
Dry wood and dye stuffs												
Fish	322	2,010							322	2,010	2,332	23 32
Flax and hemp												
Flour	1,451								1,451		1,451	14 51
Furniture	15								15		15	0 15
Gypsum		280								280	280	2 80
Glass (all kinds)	10								10		10	0 10
Hay (pressed)	502								502		502	5 02
Hogs	2	1							2	1	3	0 03
Horses	5	1							5	1	6	0 06
Hides and skins, horns and hoofs												
Ice												
Iron, railway	195								195		195	1 95
" pig	1	23							1	23	24	0 24

Iron, all other	47	71							47	71	118	1	18
Iron ore													
Kryolite chemical ore and other ore, except iron	15								15		15	0	15
Lard and lard oil	1								1		1	0	01
Meal, all kinds	399								399		399	3	99
Meats, other than pork	116								116		116	1	16
Marble	29	1,878							29	1,878	1,907	19	07
Manilla	16	200							16	200	216	2	16
Molasses	378	3							378	3	381	3	81
Nails	29								29		29	0	29
Oats	2,493	5							2,493	5	2,498	24	98
Oil (in barrels)	250	25							250	25	275	2	75
Oil cake													
Pease	46								46		46	0	46
Potatoes	6,909	5							6,609	5	6,914	69	14
Pork	115								115		115	1	15
Paint	6								6		6	0	06
Pitch and tar	4								4		4	0	04
Rags													
Rye													
Flax seed													
Rosin													
Salt	808								808		808	8	08
Stone intended for cutting	2								2		2	0	02
" wrought	34								34		34	0	34
" not suitable for cutting, unwrought	138	3,221							138	3,221	3,359	33	59
Seeds, all kinds	4								4		4	0	04
Sheep	5								5		5	0	05
Soda ash	10								10		10	0	10
Steel	5								5		5	0	05
Sugar	139								139		139	1	39
Spirits, beer, &c	65								65		65	0	65
Tobacco (raw)	2								2		2	0	02
Tallow													
Tin	41								41		41	0	41
Turpentine													
Wheat													
White lead													
Whiting													
Wool													
All other goods and merchandise not enumerated	938	5							938	5	943	9	43
Bark	75								75		75	0	75
Barrels, empty	25	25							25	25	50	0	50
Boat knees													
Floats													
Fire wood, in vessels		306								306	306	3	06
" rafts													
Hoops													
Hop poles	3								3		3	0	03
Lumber, sawn, in vessels	8,280	25							8,280	25	8,305	83	05

No. (A) 10.—General Statement showing the Quantity of each Article transported on the St. Peter Canal, &c.—*Continued.*

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons.	Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.		
												$ cts.
Lumber, sawn, in rafts												
Masts, spars and telegraph poles, in vessels		20								20	20	0 20
" " " rafts												
Railway ties, in vessels												
" in rafts												
Sawn logs	95	200							95	200	295	2 95
Staves and headings, barrel	10								10		10	0 10
" " pipe												
" " West India												
Staves, salt barrel												
Shingles	509	3							509	3	512	5 12
Split posts and fence rails, in vessels	230	310							230	310	540	5 40
" " rafts												
Timber, square, in vessels	83	10							83	10	93	0 93
" rafts												
Traverses												
Woodenware and wood partly manufactured												
Total freight heretofore paying tolls, now free	27,951	53,126							27,951	53,126	81,077	810 77
											Total tolls on vessels	2,101 19
											Other receipts	
											Total receipts	2,911 96

Department of Railways and Canals,
Ottawa, June 15, 1906.

RICHARD DEVLIN,
Compiler of Canal Statistics.

APPENDIX A—*Continued.*

No. (A) 11.—General Statement showing the Quantity of each Article transported on the Trent Valley Canals and the Amount of Tolls heretofore collected, now free, during the Season of Navigation in 1905.

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons.	Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.		
												$ cts.
Ashes, pot and pearl												
Apples												
Agricultural products not enumerated, vegetables												
" " animal												
Agricultural implements												
Barley	13								13		13	0 13
Bricks	40	2							40	2	42	0 42
Bones												
Brimstone		1								1	1	0 01
Buckwheat												
Cement and water lime		33								33	33	0 33
Clay, lime and sand												
Coal												
Corn												
Cattle												
Cotton, raw												
Crockery and earthenware												
Dye wood and dye stuffs												
Fish												
Flax and hemp												
Flour		25								25	25	0 25
Furniture	1								1		1	0 03
Gypsum												
Glass, all kinds												
Hay, pressed												
Hogs	226	66							226	66	292	3 11
Horses												
Hides and skins, horns and hoofs												
Ice												
Iron, railway												

No. (A) 11.—General Statement showing the Quantity of each Article transported on the Trent Valley Canals, &c.—*Continued.*

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons.	Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.		
												$ cts.
Iron, pig												
" all other												
Iron ore												
Kryolite or chemical ore												
Lard and lard oil												
Meal, all kinds		18								18	18	0 18
Meat, other than pork												
Marble												
Manilla												
Molasses												
Nails												
Oats	15								15		15	0 15
Oil, in barrels												
Oil cake												
Pease	126								126		126	1 26
Potatoes	19								19		19	0 19
Pork												
Paint												
Pitch and tar												
Rags												
Rye												
Flax seed												
Rosin												
Salt												
Stone intended for cutting												
" wrought												
" not suitable for cutting, unwrought												
Seeds, all kinds												
Sheep												
Soda ash												
Steel												
Sugar												
Spirits, beer, &c												
Tobacco, raw												

Tallow												
Tin												
Turpentine												
Wheat	481								484		484	1 84
White lead												
Whiting												
Wool												
All other goods and merchandise not enumerated	11	93							11	93	104	3 12
Bark	23								23		23	0 23
Barrels, empty												
Boat knees												
Floats	2,209	5,979							2,209	5,979	8,188	77 35
Firewood, in vessels	9,118	8,696							9,118	8,696	17,814	231 01
" rafts												
Hoops												
Hop poles												
Lumber, sawn, in vessels	2,718	901							2,718	901	3,619	63 05
" rafts												
Masts, spars and telegraph poles, in vessels		200								200	200	4 00
" " rafts												
Railway ties, in vessels	69								69		69	1 38
" rafts												
Saw logs	12,420	1,561							12,420	1,561	13,981	129 73
Staves and headings, barrel												
" pipe												
" West India												
Staves, salt barrel												
Shingles	126	38							126	38	164	6 95
Split posts and fence rails, in vessels												
" " rafts												
Timber, square, in vessels												
" rafts												
Traverses												
Woodenware and wood partly manufactured												
Total freight heretofore paying tolls, now free	27,618	17,613							27,618	17,613	45,231	527 72

Total tolls on vessels	577 48
" passengers	203 93
Total tolls	1,309 13
Other receipts	1 00
Total revenue, exclusive of hydraulic rents	1,310 13

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, June 15, 1906.

RICHARD DEVLIN,
Compiler of Canal Statistics.

APPENDIX A—*Continued.*

No. (A) 12.—General Statement showing the Quantity of each Article transported on the Murray Canal, and the Amount of Revenue heretofore collected, now free, during the Season of Navigation in 1905.

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons.	Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.		$ cts.
Ashes, pot and pearl												
Apples	453	375							453	375	828	15 73
Agricultural products not enumerated, vegetables	560	409							560	409	969	18 42
" " " animal	395	468							395	468	863	16 49
Agricultural implements												
Barley		633								633	633	11 87
Bricks	54								54		54	1 03
Bones												
Brimstone												
Buckwheat												
Cement and water lime	21	17							21	17	38	0 74
Clay, lime and sand	5								5		5	0 10
Coal		215						2,300		2,515	2,515	47 18
Corn	1								1		1	0 02
Cattle												
Cotton (raw)												
Crockery and earthenware	177	260							177	260	437	11 04
Dye wood and dye stuffs												
Fish												
Flax and hemp												
Flour	100	80							100	80	180	3 38
Furniture	472	566							472	566	1,038	26 30
Gypsum												
Glass (all kinds)	366	279							366	279	645	16 29
Hay (pressed)												
Hogs												
Horses	5	4							5	4	9	0 18
Hides and skins, horns and hoofs	10								10		10	0 19
Ice												
Iron, railway	10	36							10	36	46	0 87

" pig													
" all other	1,057	711							1,057	711	1,768	33	54
Iron ore													
Kryolite chemical ore and other ore, except iron													
Lard and lard oil	15	53							15	53	68	1	34
Meal, all kinds	25	20							25	20	45	0	87
Meats, other than pork	34	52							34	52	86	1	68
Marble													
Manilla													
Molasses													
Nails	551	106							551	106	657	16	57
Oats		27								27	27	0	51
Oil (in barrels)	597	1,092							597	1,092	1,689	42	34
Oil cake													
Pease													
Potatoes		2								2	2	0	04
Pork		62								62	62	1	23
Paint	767	397							767	397	1,164	29	32
Pitch and tar													
Rags	6								6		6	0	15
Rye													
Flaxseed													
Rosin													
Salt	50	62							50	62	112	2	15
Stone intended for cutting													
" wrought		8								8	8	0	20
" not suitable for cutting, unwrought	1,773								1,773		1,773	17	65
Seeds, all kinds		7								7	7	0	14
Sheep													
Soda ash	15								15		15	0	38
Steel	106	53							106	53	159	3	02
Sugar	746	148							746	148	894	22	51
Spirits, beer, &c	287	564							287	564	851	21	55
Tobacco (raw)	5	7							5	7	12	0	24
Tallow													
Tin	258								258		258	6	46
Turpentine	4								4		4	0	10
Wheat	360	48							360	48	408	7	66
White lead	259	40							259	40	299	7	56
Whiting	45	7							45	7	52	1	31
Wool		5								5	5	0	10
All other goods and merchandise not enumerated	4,325	3,789							4,325	3,791	8,116	202	62
Bark													
Barrels empty	17								17		17	0	43
Boat knees													
Floats													
Fire wood, in vessels	810	300	1,416						2,226	300	2,526	28	55
" rafts													
Hoops													
Hop poles													

No. (A) 12.—General Statement showing the Quantity of each Articles transported on the Murray Canal, &c.—*Concluded.*

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons.	Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.		
												$ cts.
Lumber, sawn, in vessels	59								59		59	6 58
" " rafts												
Masts, spars, and telegraph poles, in vessels												
" " " rafts												
Railway ties, in vessels												
" " rafts												
Saw logs												
Staves and headings, barrel												
" " pipe												
" " West India												
Staves, salt barrel												
Shingles												
Split posts and fence rails, in vessels	1								1		1	0 05
" " " rafts												
Timber, square, in vessels												
" " rafts												
Traverses												
Woodenware and wood partly manufactured												
Total freight heretofore paying tolls, now free	14,801	10,904	1,416					2,300	16,217	13,204	29,421	626 68
Total tolls on vessels												272 77
" " passengers												306 44
* Damages												
Total revenue, exclusive of hydraulic rents												1,205 89

Department of Railways and Canals,
Ottawa, June 15, 1906.

RICHARD DEVLIN,
Compiler of Canal Statistics.

No. (A) 13.—General Statement showing the Quantity of each Article transported on the Sault Ste. Marie Canal during the Season of Navigation in 1905.

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons	Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.		
												$ cts.
Ashes, pot and pearl												
Apples	830		660		334				1,824		1,824	
Agricultural products not enumerated, vegetables	107					2,450			107	2,450	2,557	
" " animal												
Agricultural implements	15								15		15	
Barley		6,196				29,873		5,724		41,793	41,793	
Bricks	473	82							473	82	555	
Bones												
Brimstone												
Buckwheat												
Cement and water lime	11,725		15,699		87				27,511		27,511	
Clay, lime and sand	3	1,380							3	1,380	1,383	
Coal	9,337	575	2,200		424,219	1,000	509,893		943,449	3,775	947,224	
Corn						4,116				4,116	4,116	
Cattle	26	2					3		29	2	31	
Cotton (raw)												
Crockery and earthenware	445	95							445	95	540	
Dye wood and dye stuffs	5								5		5	
Fish	20	986		36		301		50	20	1,373	1,393	
Flax and hemp												
Flour		61,713				124,584		4,581		190,878	190,878	
Furniture	280								280		280	
Gypsum												
Glass (all kinds)	1,675						27		1,702		1,702	
Hay (pressed)	2,812								2,812		2,812	
Hogs	1								1		1	
Horses	35	7		1	1				36	8	44	
Hides and skins, horns and hoofs		2				41				43	43	
Ice												
Iron, railway	1,049	26,766	180	13,062	1,613		10,440		13,282	39,828	53,110	

No. (A) 13.—General Statement showing the Quantity of each Article transported on the Sault Ste. Marie Canal—*Concluded.*

Articles.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons	Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.		
												$ cts.
Iron, pig	18,199					4,781			18,199	4,781	22,980	
" all other	9,991	550		21	1,566		798		12,355	571	12,926	
" ore	5,439	74,601	2,000	99,941		2,623,607	1,680	111,969	9,119	2,910,118	2,919,237	
Copper ore		32				10,974				11,006	11,006	
Kryolite or chemical ore												
Lard and lard oil	106								106		106	
Meals, all kinds	1	773				3,050			1	3,823	3,824	
Meat, other than pork	1								1		1	
Marble												
Manilla	1,160								1,160		1,160	
Molasses	125								125		125	
Nails	7,024	1							7,024	1	7,025	
Oats	170	7,727				25,315		2,508	170	35,550	35,720	
Oil (in barrels)	1,253						246		1,499		1,499	
Oil cake		40						504		544	544	
Pease												
Potatoes	23								23		23	
Pork												
Paint	268								268		268	
Pitch and tar	10								10		10	
Rags	20								20		20	
Rye						1,910				1,910	1,910	
Flax seed		656		4,583		46,679		1,964		53,882	53,882	
Rosin												
Salt	2,394				17,413		479		20,286		20,286	
Stone intended for cutting												
" wrought	5								5		5	
" not suitable for cutting, unwrought	150				3,111		9,563		12,824		12,824	
Seeds, all kinds	21								21		21	
Sheep	1								1		1	
Soda ash	18								18		18	
Steel	60	1,698			93		27		180	1,698	1,878	
Sugar	2,440				2,525				4,965		4,965	
Spirits, beer, &c	1,472								1,472		1,472	

Tobacco, raw												
Tallow												
Tin	456								456		456	
Turpentine												
Wheat	2,940	613,909		64,196		80,418		18,030	2,940	776,553	779,493	
White lead	93								93		93	
Whiting	160								160		160	
Wool		37				2,245		180		2,462	2,462	
All other goods and merchandise not enumerated	139,390	3,953	12,072	155	42,629	2,865	1,214	59	195,305	7,052	202,357	
Bark			10						10		10	
Barrels, empty												
Boat knees												
Floats	64	56							64	56	120	
Firewood, in vessels	123	1,215	600	150		400			723	1,815	2,538	
" rafts												
Hoops												
Hop poles												
Lumber, sawn, in vessels	1,107	625	818	19,793		12,805			1,925	33,226	35,151	
" rafts		217								217	217	
Masts, spars and telegraph poles, in vessels	20								20		20	
" " rafts												
Railway ties, in vessels				125			25		25	125	150	
" rafts												
Saw logs	32,893	4,786	182		780	773	105	915	33,960	6,474	40,434	
Staves and headings, barrel												
" pipe												
" West India												
Staves, salt barrel												
Shingles	1,169	17				13,292		544	1,169	13,853	15,022	
Split posts and fence rails, in vessels												
" " rafts												
Timber, square, in vessels	379	10						1,600	379	1,610	1,989	
" rafts	1,072	109							1,072	109	1,181	
Traverses												
Woodenware and wood partly manufacured												
Total freight	259,055	808,816	32,221	204,263	494,371	2,991,552	534,500	148,628	1,320,147	4,153,259	5,473,406	

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, June 15, 1906

RICHARD DEVLIN,
Compiler of Canal Statistics.

No. (A) 14.—STATEMENT of Traffic on the undermentioned Canals, and the Amount

Articles.	Welland Canal.		St. Lawrence Canals.		Chambly Canal.	
	Tons.	Tolls.	Tons.	Tolls.	Tons.	Tolls.
Class No. 1.		$ cts.		$ cts.		$ cts.
Canadian vessels, steam	374,538	6,202 79	913,265	6,856 05	69,949	252 14
United States vessels, steam	567,776	8,834 07	320,529	2,421 71	27,068	274 33
Canadian vessels, sail	104,851	2,278 55	1,042,120	9,433 92	713	13 22
United States vessels, sail	54,330	1,133 64	92,287	1,169 41	281,387	3,884 84
Total, Class No. 1	1,101,495	18,449 05	2,368,201	19,881 09	379,112	4,424 53
Class No. 2.	No.		No.		No.	
Passengers	1,282	125 65	104,707	5,420 80	3,108	47 84
Class No. 3.	Tons.		Tons.		Tons.	
Bricks	525	79 50	17,201	829 76	2,519	277 21
Brimstone			1,176	115 51		
Buckwheat			719	70 57		
Cement and water lime	50	7 50	2,041	124 94	794	73 24
Clay, lime and sand	375	59 45	80,055	3,023 88	10,412	1,048 63
Fish	101	15 15	41	2 07		
Gypsum						
Iron, railway	2,651	474 70	591	29 00	902	87 08
" pig	1,310	245 50	3,572	283 62	1,176	117 60
" all other	9,602	1,567 55	33,271	2,776 76	155	5 33
Steel	948	144 60	2,552	336 74		
Salt	226	44 10	3,804	392 82	608	43 02
Stone, for cutting			1	0 06		
Apples			4,544	597 76	1,312	89 93
Barley	55,432	5,543 20	16,239	861 23		
Corn	180,921	18,092 10	76,464	2,363 46	2	0 20
Cotton (raw)			2	0 30		
Flax and hemp						
Flour	38,512	7,702 40	11,554	641 34	584	19 74
Hay (pressed)	206	40 00	7,313	343 86	17,431	885 37
Meals (all kinds)	9,807	1,961 35	734	32 00	2	0 07
Oil cake	10,119	2,023 80	894	44 91		
Oats	36,072	3,607 20	23,511	1,068 19	1,891	63 19
Pease	76	7 60	691	68 70	11	0 37
Potatoes			138	12 51	7	0 24
Rye	1,711	171 10	1,682	42 05		
Flax seed	15,694	1,569 40				
Seeds (all kinds)	43	4 30	3,633	142 12	30	1 03
Tobacco (raw)	204	40 80	9	1 26		
Wheat	254,458	24,946 37	212,747	6,744 20		
All other agricultural products, vegetables			2,646	361 21		
Bones			8	0 94		
Cattle			535	37 22	145	5 06
Hogs			23	0 99		
Hides and skins, horns and hoofs	46	9 20	22	2 38		
Horses			1,260	66 77	17	0 65
Lard and lard oil	2,847	569 40	250	32 37	2	0 07
Meats (other than pork)	102	19 65	116	16 56		
Pork	273	54 60	576	50 16	2	0 08
Sheep			81	3 51	81	2 88
Tallow	570	88 15	9	1 05		
Wool	21	4 10	1	0 04		
All other agricultural products, animal			5,379	623 28	579	56 73
Total, class No. 3	622,896	69,083 87	516,085	22,146 10	38,662	2,777 72

SESSIONAL PAPER No. 20a

A—*Continued.*

of Tolls heretofore collected, now free, during the Season of Navigation in 1905.

Murray Canal.		Ottawa Canals.		Rideau Canal.		St. Peter's Canal.		Trent Valley Canals.		Sault Ste. Marie Canal.
Tons.	Tolls.	Tons.	Tolls.	Tons.	Tolls.	Tons.	Tolls.	Tons.	Tolls.	Tons.
	$ cts.		$ cts.		$ cts.		$ cts.		$ cts.	
214,627	225 23	138,059	882 51	149,342	1,273 92	27,890	557 81	95,477	469 18	1,656,964
9,733	31 43	88,380	1,274 25	1,633	36 95	75,906	1,520 12	17	1 25	3,442,809
2,411	9 25	14	0 25	29,462	574 94	1,067	21 34	27,241	107 05	146,324
2,066	6 86	31,444	736 95	6,122	120 79	96	1 92	.....	.....	291,540
228,837	272 77	257,897	2,893 96	186,559	2,006 60	104,959	2,101 19	122,735	577 48	5,537,637
No.		No.		No.		No.		No.		No.
25,204	306 44	21,284	260 70	24,394	671 66	.....	.....	27,419	203 93	26,147
Tons.		Tons.		Tons.		Tons.		Tons.		Tons.
54	1 03	.....	.....	692	23 89	2,226	22 26	42	0 42	555
.....	.....	.....	.....	.....	.....	.....	.....	1	0 01	.....
.....	.....	2	0 12	.....	.....	.....	.....	.....	.....	.....
38	0 74	1	0 06	529	13 92	945	9 45	33	0 33	27,511
5	0 10	14,080	603 35	4,371	102 13	237	2 37	.....	.....	1,383
.....	.....	11	0 66	3	0 07	2,332	23 32	.....	.....	1,393
.....	.....	.....	.....	.....	.....	280	2 80	.....	.....	.....
46	0 87	.....	.....	20	0 48	195	1 95	.....	.....	53,110
.....	.....	.....	.....	175	6 18	24	0 24	.....	.....	22,980
1,768	33 54	24	1 59	644	19 72	118	1 18	.....	.....	12,926
159	3 02	.....	.....	119	4 50	5	0 05	.....	.....	1,878
112	2 15	100	9 75	2,204	58 63	808	8 08	.....	.....	20,286
.....	.....	.....	.....	.....	.....	2	0 02	.....	.....	.....
828	15 73	340	19 87	259	8 05	110	1 10	.....	.....	1,824
633	11 87	.....	.....	105	2 47	11	0 11	13	0 13	41,793
1	0 02	1	0 06	4	0 12	.....	.....	.....	.....	4,116
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	57	3 29	7	0 17	.....	.....	.....	.....	.....
180	3 38	107	9 01	647	18 79	1,451	14 51	25	0 25	190,878
.....	.....	4,433	413 23	663	17 13	502	5 02	.....	.....	2,812
45	0 87	.....	.....	3	0 09	399	3 99	18	0 18	3,824
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	544
27	0 51	1,016	92 72	508	21 41	2,498	24 98	15	0 15	35,720
.....	.....	.....	.....	.....	.....	46	0 46	126	1 26	.....
2	0 04	282	16 60	35	0 98	6,914	69 14	19	0 19	23
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,910
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	53,882
7	0 14	.....	.....	2	0 05	4	0 04	.....	.....	21
12	0 24	.....	.....	12	0 29	2	0 02	.....	.....	.....
408	7 66	.....	.....	977	22 81	.....	.....	484	4 84	779,493
969	18 42	4	0 28	47	1 26	247	2 47	.....	.....	2,557
.....	.....	7	0 50	.....	.....	37	0 37	.....	.....	.....
.....	.....	734	61 33	1	0 03	22	0 22	.....	.....	31
.....	.....	126	9 90	.....	.....	3	0 03	292	3 11	1
10	0 19	15	1 13	1	0 03	.....	.....	.....	.....	43
9	0 18	221	13 42	7	0 20	6	0 06	.....	.....	44
68	1 34	.....	.....	25	0 60	1	0 01	.....	.....	106
86	1 68	.....	.....	13	0 36	116	1 16	.....	.....	1
62	1 23	5	0 38	180	5 63	115	1 15	.....	.....	.....
.....	.....	448	40 78	.....	.....	5	0 05	.....	.....	1
.....	.....	8	0 80	.....	.....	.....	.....	.....	.....	.....
5	0 10	.....	.....	.....	.....	.....	.....	.....	.....	.....
863	16 49	2,824	251 14	2,828	204 06	4	0 04	.....	.....	2,462
6,397	121 54	24,846	1,549 97	15,081	534 05	19,665	196 65	1,068	10 87	1,264,108

No. (A) 14.—STATEMENT of Traffic on the undermentioned Canals and the Amount

Articles.	Welland Canal.		St. Lawrence Canals.		Chambly Canal.	
	Tons.	Tolls.	Tons.	Tolls.	Tons.	Tolls.
Class No. 4.		$ cts.		$ cts.		$ cts.
Ashes, pot and pearl			47	5 15		
Agricultural implements	552	110 40	155	16 98	85	3 18
Crockery and earthenware	202	34 95	540	106 60	277	24 25
Dry woods and dry stuffs			20	3 50		
Furniture	13	1 95	3,554	554 39	7	0 24
Glass (all kinds)	323	49 70	3,248	646 51		
Marble	568	85 20				
Manilla	15	2 25	146	29 18	1	0 04
Molasses	883	176 60	652	96 12	68	2 33
Nails	3,284	495 85	5,822	1,144 33	104	3 63
Oil (in barrels)	24,314	4,836 20	3,675	696 94	105	5 37
Paint	269	42 45	2,070	401 60	1	0 04
Pitch and tar	53	10 60	320	46 79	728	72 80
Rags	4	0 80	371	46 70		
Rosin			1,400	72 33	2,119	260 92
Soda ash	82	15 65	948	183 10		
Sugar	9,281	1,495 75	11,443	2,238 78	158	5 45
Stone (wrought)			177	8 95		
Tin	407	63 70	4,004	787 93		
Turpentine	1	0 15	21	4 05		
White lead	27	4 40	789	154 73		
Whiting	70	10 50	609	121 03		
Whiskey and all other spirits	1,464	256 55	2,234	405 86	37	1 27
Merchandise (not enumerated)	45,645	6,975 22	63,359	9,825 52	4,930	342 33
Total, class No. 4	87,457	14,668 87	105,604	1,597 07	8,620	721 85
Class No. 5.						
Bark						
Barrels (empty)	3	0 60	1,721	121 82	64	5 30
Boat knees						
Floats					333	11 10
Fire wood (in vessels)	6,582	411 68	150,679	10,107 20	225,360	7,639 87
" (in rafts)						
Lumber sawn (in vessels)	93,543	16,830 16	59,985	2,396 10	78,126	4,146 20
" (in rafts)						
Hoops						
Railway ties (in vessels)	2,248	359 45	4,431	386 48		
" (in rafts)						
Masts, spars and telegraph poles (in vessels)			390	29 00		
Masts, spares and telegraph poles (in rafts)			10,967	274 50	32	1 07
Square timber (in vessels)	10,760	1,614 00	93	1 80		
" (in rafts)			11,591	302 33		
Woodenware and wood partly manufactured	601	240 40	556	117 00		
Shingles	62	20 13	11	1 83	211	22 34
Split posts and fence rails (in vessels)	12	4 80			210	21 00
" (in rafts)						
Saw logs	381	22 50	3,858	240 00		
Staves and headings (barrel)						
" " (pipe)						
" " (West India)						
" " (salt barrel)						
Traverses						
Hop poles						
Total, class No. 5	114,192	19,503 72	244,282	13,978 06	304,336	12,116 88

SESSIONAL PAPER No. 20a

A—*Continued.*

of Tolls heretofore collected, now free, during the Season of Navigation in 1905.

Murray Canal.		Ottawa Canals.		Rideau Canal.		St. Peter's Canal.		Trent Valley Canal.		Sault Ste. Marie Canal.
Tons.	Tolls.	Tons.	Tolls.	Tons.	Tolls.	Tons.	Tolls.	Tons.	Tolls.	Tons.
	$ cts.		$ cts.		$ cts.		$ cts.		$ cts.	
				10	0 87					
		19	2 07	276	33 04					15
437	11 04	12	2 28	26	2 34	13	0 13			540
				5	0 44					5
1,038	26 30	79	10 12	88	8 21	15	0 15	1	0 03	280
645	16 29	46	8 74	112	12 41	10	0 10			1,702
						1,907	19 07			
				6	0 53	216	2 16			1,160
		5	0 95	118	10 32	381	3 81			125
657	16 57			453	46 59	29	0 29			7,025
1,689	42 34	28	5 14	421	37 81	275	2 75			1,499
1,164	29 32	3	0 57	109	11 00	6	0 06			268
		26	4 94	102	8 89	4	0 04			10
6	0 15	136	24 58	79	6 92					20
				7	0 61					
15	0 38					10	0 10			18
894	22 51			395	41 51	139	1 39			4,963
8	0 20	1	0 10	3	0 27	34	0 34			5
258	6 46	1	0 10	7	0 62	41	0 41			456
4	0 10			15	1 31					
299	7 56			178	15 86					93
59	1 31			14	1 23					160
851	21 55	51	5 27	506	44 94	65	0 65			1,472
8,116	202 62	2,753	487 10	3,280	309 01	943	9 43	104	3 12	202,357
16,133	404 70	3,160	551 96	6,210	594 83	4,088	40 88	105	3 15	222,175
				9	0 82	75	0 75	23	0 23	10
17	0 43	80	14 75	61	4 89	50	0 50			
		35,400	297 46	200	3 50			8,188	77 35	120
2,526	28 55	11,669	452 34	6,219	116 17	306	3 06	17,814	231 01	2,538
59	6 58	292,754	32,883 20	19,486	1,114 73	8,305	83 05	3,619	63 05	35,151
		46	0 81	91	3 56					217
		8	0 71							
		49	6 63	523	20 63			69	1 38	150
				2	0 06	20	0 20	200	4 00	20
		280	1 98			93	0 93			1,989
		3,035	34 03							1,181
				3	0 90					
		14	0 93	304	67 93	512	5 12	164	6 95	15,022
1	0 05			10	0 77	540	5 40			
						295	2 95	13,981	129 73	40,434
						10	0 10			
				200	1 27					
						3	0 03			
2,603	35 61	343,335	23,692 84	27,108	1,345 23	10,209	102 09	44,058	513 70	96,832

No. (A) 14.—STATEMENT of Traffic on the undermentioned Canals and the Amount

Articles.	Welland Canal.		St. Lawrence Canals.		Chambly Canal.	
	Tons.	Tolls.	Tons.	Tolls.	Tons.	Tolls.
Special Class.		$ cts.		$ cts.		$ cts.
Coal	172,642	34,528 40	343,797	49,301 52	75,816	7,279 69
Kryolite or chemical ore			287	32 29	420	23 10
Copper ore						
Iron ore	22,381	1,119 05			17,682	892 35
Stone (unwrought, not suitable for cutting)			12,217	253 80	1,533	107 92
Ice						
Total, special class	195,023	35,647 45	356,301	49,587 61	95,451	8,303 06
Total freight and tolls	1,019,568	157,478 61	1,222,272	128,610 73	447,069	28,391 88
Timber and other wood, free	43,982	2,938 80	5,217	698 45		
Wheat, corn, flour, Iron, salt, coal &c., free	28,500	4,275 00	525,366	55,524 65		
Grand totals (passengers and tonnage of vessels not included.)	1,002,050	164,692 41	1,752,855	184,833 83	447,069	28,391 88

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, June 15, 1906.

of Tolls heretofore collected, now free, during the Season of Navigation 1905.

Murray Canal.		Ottawa Canals.		Rideau Canal.		St. Peter's Canal.		Trent Valley Canals.		Sault Ste. Marie Canal
Tons.	Tolls.	Tons.	Tolls.	Tons.	Tolls.	Tons.	Tolls.	Tons.	Tolls.	Tons.
	$ cts.		$ cts.		$ cts.		$ cts.		$ cts.	
2,515	47 18	.....	.....	11,200	432 13	43,741	437 41	.....	.....	947,224
.....	.....	.....	.....	265	4 93	15	0 15	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	11,006
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,919,237
1,773	17 65	.....	.....	.....	.....	3,359	33 59	.....	.....	12,824
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
4,288	64 83	.....	.....	11,465	437 06	47,115	471 15	.....	.....	3,890,291
29,421	1,205 89	371,341	28,949 43	59,864	5,889 43	81,077	2,911 96	45,231	1,309 13	5,473,406
.....	.....	19,430	171 48	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
29,421	1,205 89	390,771	29,120 91	59,864	5,889 43	81,077	2,911 96	45,231	1,309 13	5,473,406

RICHARD DEVLIN,
Compiler of Canal Statistics.

SUPPLEMENTARY

No. (A) 15.—Summary Statement of Traffic on the undermentioned Canals during the description of property passed through and

Articles.	Welland Canal.		St. Lawrence Canals.		Chambly Canal.	
	Tons.	Tolls.	Tons.	Tolls.	Tons.	Tolls.
		$ cts.		$ cts.		$ cts.
Vessels of all kinds	1,101,495	18,449 05	2,368,201	19,881 09	379,112	4,424 53
	No.		No.		No.	
Passengers	1,282	125 65	104,707	5,420 80	3,108	47 84
Forest—Produce of Wood.	Tons.		Tons.		Tons.	
Bark						
Boat knees						
Floats					333	11 10
Firewood	6,582	411 68	150,679	10,107 20	225,360	7,639 87
" Free.	43,982					
Hoops and hop poles						
Lumber, sawed	93,543	16,830 16	59,985	2,396 10	78,126	4,416 20
" Free.			3,957			
Masts, spars, &c			11,357	303 50	32	1 07
Railway ties	2,248	359 45	4,431	386 48		
Saw logs	381	22 50	3,858	240 00		
Staves, all kinds						
Shingles	62	20 13	11	1 83	211	22 34
Split posts and rails	12	4 80			210	21 00
Timber, square	10,760	1,614 00	11,684	304 13		
" Free.			1,260			
Traverses						
Total	157,570	19,262 72	247,222	13,739 24	304,272	12,111 58
Farm Stock.						
Cattle			535	37 22	145	5 06
Hogs			23	0 99		
Horses			1,260	66 77	17	0 65
Sheep			81	3 51	81	2 88
Total			1,899	108 49	243	8 59
Produce of Animals.						
Bones			8	0 94		
Horns and hoofs, hides and skins (raw)	46	9 20	22	2 38		
Lard and lard oil	2,847	569 40	250	32 37	2	0 07
" Free.			2,847			
Meats, other than pork	102	19 65	116	16 56		
" " Free.	28					
Pork	273	54 60	576	50 16	2	0 08
Tallow	570	88 15	9	1 05		
" Free.			53			
Wool	21	4 20	1	0 04		
Agricultural products not enumerated (animal)			5,379	623 28	579	56 73
Total	3,887	745 20	9,261	726 78	583	56 88

APPENDIX A—*Continued.*

Season of Navigation ended December 31, 1905, showing the total quantity of each the amount of Tolls collected thereon.

Murray Canal.		Ottawa Canals.		Rideau Canal.		St. Peter's Canal.		Trent Valley Canals.		Sault Ste. Marie Canal.
Tons.	Tolls.	Tons.	Tolls.	Tons.	Tolls.	Tons.	Tolls.	Tons.	Tolls.	Tons.
	$ cts.		$ cts.		$ cts.		$ cts.		$ cts.	Free.
228,837	272 77	257,897	2,893 96	186,559	2,006 60	104,959	2,101 19	122,735	577 48	5,537,637
No.		No.		No.		No.		No.		No.
25,204	306 44	21,284	260 70	24,394	671 66	.....	.....	27,419	203 93	26,147
Tons.		Tons.		Tons.		Tons.		Tons.		Tons.
.....	.....	.....	.....	9	0 82	75	0 75	23	0 23	10
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	35,400	297 46	200	3 50	.....	.....	8,188	77 35	120
2,526	28 55	11,669	452 34	6,219	126 17	306	3 06	17,814	231 01	2,538
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	8	0 71	.....	.....	3	0 03	.....	.....	.....
59	6 58	292,800	22,884 01	19,577	1,118 29	8,305	83 05	3,619	63 05	35,368
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	2	0 06	20	0 20	200	4 00	20
.....	.....	49	6 63	523	20 63	.....	.....	69	1 38	150
.....	.....	.....	.....	.....	.....	295	2 95	13,981	129 73	40,434
.....	.....	.....	.....	.....	.....	10	0 10	.....	.....	.....
.....	.....	14	0 93	304	67 93	512	5 12	164	6 95	15,022
1	0 05	.....	.....	10	0 77	540	5 40	.....	.....	.....
.....	.....	3,315	36 01	.....	.....	93	0 93	.....	.....	3,170
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	200	1 27	.....	.....	.....	.....	.....
2,586	35 18	343,255	23,678 09	27,044	1,339 44	19,159	101 59	44,058	513 70	96,832
.....	.....	734	61 33	1	0 03	22	0 22	.....	.....	31
.....	.....	126	9 90	.....	.....	3	0 03	292	3 11	1
9	0 18	221	13 42	7	0 20	6	0 06	.....	.....	44
.....	.....	448	40 78	.....	.....	5	0 05	.....	.....	1
9	0 18	1,529	125 43	8	0 23	36	0 36	292	3 11	77
.....	.....	7	0 50	.....	.....	37	0 37	.....	.....	.....
10	0 19	15	1 13	1	0 03	.....	.....	.....	.....	43
68	1 34	.....	.....	25	0 60	1	0 01	.....	.....	106
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
86	1 68	.....	.....	13	0 36	116	1 16	.....	.....	1
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
62	1 23	5	0 38	180	5 63	115	1 15	.....	.....	.....
.....	.....	8	0 80	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5	0 10	.....	.....	.....	.....	.....	.....	.....	.....	2,462
863	16 49	2,824	251 14	2,828	204 06	4	0 04	.....	.....	.....
1,094	21 03	2,859	253 95	3,047	210 68	273	2 73	.....	.....	2,612

SUPPLEMENTARY

No. (A) 15.—Summary Statement of Traffic on the undermentioned

Articles.	Welland Canal.		St. Lawrence Canals.		Chambly Canal.	
	Tons.	Tolls.	Tons.	Tolls.	Tons.	Tolls.
Agricultural Products.		$ cts.		$ cts.		$ cts.
Agricultural products not enumerated (vegetable)			2,646	361 21		
" " Free.	127					
Apples			4,544	597 76	1,312	89 93
Barley	55,432	5,543 20	16,239	861 23		
" Free.			43,607			
Buckwheat			719	70 57		
Cotton, raw			2	0 30		
Corn	180,921	18,092 10	76,464	2,363 46	2	0 20
" Free.			84,631			
Flax and hemp						
Flour	38,512	7,702 40	11,554	641 34	584	19 74
" Free.	18		14,571			
Hay, pressed	200	40 00	7,313	343 86	17,431	885 37
Meals, all kinds	9,807	1,961 35	734	32 00	2	0 07
" Free.			270			
Manilla	15	2 25	146	29 18	1	0 04
" Free.	93					
Oats	36,072	3,607 20	23,511	1,068 19	1,891	63 19
" Free.			21,404			
Pease	76	7 60	691	68 70	11	0 37
Potatoes			138	12 51	7	0 24
Rye	1,711	171 10	1,682	42 05		
" Free.			1,711			
Seeds—flax, clover and grass	15,737	1,573 70	3,633	142 12	30	1 03
" " Free.	35		15,694			
Tobacco, raw	204	40 80	9	1 26	37	1 27
" Free.			204			
Wheat	254,458	24,946 37	212,747	6,744 20		
" Free.			190,505			
Total	593,418	63,688 07	735,369	13,379 94	21,308	1,061 45
Manufactures.						
Ashes, pot and pearl			47	5 15		
Agricultural implements	552	110 40	155	16 98	85	3 18
Barrels, empty	3	0 60	1,721	121 82	64	5 30
Bricks	525	79 50	17,201	829 76	2,519	277 21
" Free.	132					
Cement and water lime	50	7 50	2,041	124 94	794	73 24
" Free.	181					
Crockery and earthenware	202	34 95	540	106 60	277	24 25
" " Free.	155		93			
Furniture	13	1 95	3,554	554 39	7	0 24
" Free.	2					
Glass of all kinds	323	49 70	3,248	646 51		
" Free.	1,641		21			
Iron, railway	2,651	474 70	591	29 00	902	87 08
" " Free.	126		10			
" pig	1,310	245 50	3,570	283 62	1,176	117 60
" " Free.	312					
" all other	9,602	1,567 55	33,272	2,776 76	155	5 33
" " Free.	3,633		384			
Molasses	883	176 60	652	96 12	68	2 33
" Free.	1	1	820			
Nails	3,234	495 85	5,822	1,144 33	104	3 63
" Free.	3,061		64			
Oil	24,314	4,836 20	3,675	696 94	105	5 37
" Free.	120		20,700			

SESSIONAL PAPER No. 20a

APPENDIX A—*Continued.*

Canals and the amount of Tolls collected, &c.—*Continued.*

Murray Canal.		Ottawa Canals.		Rideau Canal.		St. Peter's Canal.		Trent Valley Canals.		Sault Ste. Marie Canal.
Tons.	Tolls.	Tons.	Tolls.	Tons.	Tolls.	Tons.	Tolls.	Tons.	Tolls.	Tons.
	$ cts.		$ cts.		$ cts.		$ cts.		$ cts.	Free.
969	18 42	4	0 28	47	1 26	247	2 47	.....	.....	2,557
828	15 73	340	19 87	259	8 05	110	1 10	.....	.....	1,824
633	11 87	.....	.....	105	2 47	11	0 11	13	0 13	41,793
.....	.....	2	0 12	.....	.....	.....	.....	.....	.....	.....
1	0 02	1	0 06	4	0 12	.....	.....	.....	.....	4,116
.....	.....	57	3 29	7	0 17	.....	.....	.....	.....	.....
180	3 38	107	9 01	647	18 79	1,451	14 51	25	0 25	190,878
.....	.....	4,433	413 23	663	17 13	502	5 02	.....	.....	2,812
45	0 87	.....	.....	3	0 09	399	3 99	18	0 18	3,824
.....	.....	.....	.....	6	0 53	216	2 16	.....	.....	1,160
27	0 51	1,016	92 72	508	21 41	2,498	24 98	15	0 15	35,720
.....	.....	.....	.....	.....	.....	46	0 46	126	1 26	.....
2	0 04	282	16 60	35	0 98	6,914	69 14	19	0 19	23
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,910
7	0 14	.....	.....	2	0 05	4	0 04	.....	.....	53,903
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
12	0 24	.....	.....	12	0 29	2	0 02	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
408	7 66	.....	.....	977	22 81	.....	.....	484	4 84	779,493
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3,112	58 88	6,242	555 18	3,275	94 15	12,400	124 00	700	7 00	1,120,013
•										
.....	.....	.....	.....	10	0 87	.....	.....	.....	.....	.....
.....	.....	19	2 07	276	33 04	.....	.....	.....	.....	15
17	0 43	80	14 75	61	4 89	50	0 50	.....	.....	.....
54	1 03	.....	.....	692	23 89	2,226	22 26	42	0 42	555
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
38	0 74	1	0 06	529	13 92	945	9 45	33	0 33	27,511
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
437	11 04	12	2 28	26	2 34	13	0 13	.....	.....	540
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1,038	26 30	79	10 12	88	8 21	15	0 15	1	0 03	280
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
645	16 29	46	8 74	112	12 41	10	0 10	.....	.....	1,702
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
46	0 87	.....	.....	20	0 48	195	1 95	.....	.....	53,110
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	175	6 18	24	0 24	.....	.....	22,980
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1,768	33 54	24	1 59	644	19 72	118	1 18	.....	.....	12,926
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	5	0 95	118	10 32	381	381	.....	.....	125
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
657	16 57	.....	.....	453	46 69	29	0 29	.....	.....	7,025
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1,689	42 34	28	5 14	421	37 81	275	2 75	.....	.....	1,499
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

SUPPLEMENTARY APPENDIX

No (A) 15.—Summary Statement of Traffic on the undermentioned

Articles.	Welland Canal.		St. Lawrence Canals.		Chambly Canal.	
	Tons.	Tolls.	Tons.	Tolls.	Tons.	Tolls.
Manufactures—Con.		$ cts.		$ cts.		$ cts.
Oil cake	10,119	2,023 80	894	44 91		
" Free.			9,229			
Paint	269	42 45	2,070	401 60	1	0 04
" Free.	367					
Pitch and tar	53	10 60	329	46 79	728	72 80
" Free.	5		53			
Rosin			1,400	72 33	2,119	260 92
Soda ash	82	15 65	948	183 10		
" Free.	28		59			
Spirits, whiskey, &c	1,464	256 55	2,234	405 86		
" Free.	384		635			
Steel	948	144 60	2,552	336 74		
" Free.	192		48			
Sugar	9,281	1,495 75	11,443	2,238 78	158	5 45
" Free.	1,168		2,019			
Tin	407	63 70	4,004	787 93		
" Free.	928		53			
White lead	27	4 40	789	154 73		
" Free.	80					
Turpentine	1	0 15	21	4 05		
Whiting	70	10 50	609	121 03		
" Free.	158					
Woodenware	601	240 40	556	117 00		
Total	79,708	12,389 55	138,118	12,347 77	9,262	943 97
Merchandise.						
Brimstone (crude)			1,176	115 51		
Clay, lime and sand	375	50 45	80,055	3,023 88	10,412	1,048 63
" Free.			22			
Coal	172,642	34,528 40	343,797	49,301 52	75,816	7,279 69
" Free.			110,803			
Dye woods and dye stuffs			20	3 50		
Fish	101	15 15	41	2 07		
Gypsum						
Ores (all kinds)	22,381	1,119 05	287	32 29	18,102	915 45
" Free.			3,837			
Marble	568	85 20				
Rags	4	0 80	371	46 70		
" Free.	15					
Salt	226	44 10	3,804	392 82	608	43 02
" Free.	150		168			
Stone (all kinds)			12,395	262 81	1,533	107 92
All other goods and merchandise (not enumerated)	45,645	6,975 22	63,359	9,825 52	4,930	342 33
" " Free.	15,360		851			
Total	257,467	42,818 37	620,986	63,006 62	111,401	9,737 04
Grand totals (passengers and tonnage of vessels not included)	1,092,050	157,478 61	1,752,855	128,610 73	447,069	28,391 88

Department of Railways and Canals,
Ottawa, June 15, 1906.

SESSIONAL PAPER No. 20a

A—*Continued.*

Canals and the amount of Tolls collected, &c.—*Concluded.*

Murray Canal.		Ottawa Canals.		Rideau Canal.		St. Peter's Canal.		Trent Valley Canals.		Sault Ste. Marie Canal.
Tons.	Tolls.	Tons.	Tolls.	Tons.	Tolls.	Tons.	Tolls.	Tons.	Tolls.	Tons.
	$ cts.		$ cts.		$ cts.		$ cts.		$ cts.	Free.
										541
1,164	29 32	3	0 57	109	11 00	6	0 06			268
		26	4 94	102	8 89	4	0 04			10
				7	0 61					
15	0 38					10	0 10			18
851	21 55	51	5 27	506	44 94	65	0 65			1,472
159	3 02			119	4 50	5	0 05			1,878
894	22 51			395	41 51	139	1 39			4,965
258	6 46	1	0 10	7	0 62	41	0 41			456
299	7 56			178	15 85					93
4	0 10			15	1 31					
52	1 31			14	1 23					160
				3	0 90					
10,085	241 36	375	56 58	5,080	352 14	4,551	45 51	76	0 78	138,132
								1	0 01	
5	0 10	14,080	603 35	4,371	102 13	237	2 37			1,383
2,515	47 18			11,200	432 13	43,741	437 41			947,224
				5	0 44					5
		11	0 66	3	0 07	2,332	23 32			1,393
						280	2 80			
				265	4 93	15	0 15			2,930,243
						1,907	19 07			
6	15	136	24 58	79	6 92					20
112	2 15	100	9 75	2,204	58 63	808	8 08			20,286
1,781	17 85	1	0 10	3	27	3,395	33 95			12,829
8,116	202 62	2,753	487 10	3,280	309 01	943	9 43	104	3 12	202,357
12.535	270 05	17,081	1,125 54	21,410	914 53	53,658	536 58	105	3 13	4,115,740
29,421	1,205 89	371,341	28,949 43	59,864	5,589 43	81,077	2,911 96	45,231	1,309 13	5,473,406

RICHARD DEVLIN,
Compiler of Canal Statistics.

No. 16.—STATEMENT showing the Amount of Tolls accrued each month during the Season of Navigation ended December 31, 1905.

Canals and Offices.	April.	May.	June.	July.	August.	September	October.	November.	December.	Total.
WELLAND CANAL.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Chippawa	.....	271 25	65 25	*.....	.....	.....	.....	.....	.....	336 50
Colborne	1,814 51	15,822 46	16,756 87	16,393 09	16,534 88	16,404 60	20,458 69	12,922 32	3,638 90	120,746 32
Dalhousie	1,464 47	5,172 49	5,115 54	4,637 99	5,771 59	4,395 28	4,875 59	4,236 67	621 61	36,291 23
Dunnville	1 08	60 25	12 19	*.....	.....	.....	.....	.....	.....	73 52
St. Catharines	.....	0 75	30 29	*.....	.....	.....	.....	.....	.....	31 04
Total, Welland Canal	3,280 06	21,327 20	21,980 14	21,031 08	22,306 47	20,799 88	25,334 28	17,158 99	4,260 51	157,478 61
ST. LAWRENCE CANALS.										
Soulanges	.....	1,281 32	1,252, 18	1,018 18	1,246 64	1,472 99	1,812 13	1,595 83	.....	9,679 27
Cardinal	.....	155 83	152 83	449 27	291 31	186 14	177 40	180 89	70 17	1,663 84
Cornwall	.....	7,226 62	8,734 80	8,255 29	7,374 90	6,831 63	6,850 32	4,646 80	3 57	49,923 93
Kingston	802 40	1,707 15	1,925 39	1,196 05	906 87	1,047 85	1,869 80	1,940 33	.....	11,395 84
Lachine	.....	501 34	581 07	1,544 77	1,160 09	937 76	670 13	389 11	.....	5,784 27
Montreal	.....	5,411 75	7,013 06	8,888 16	9,479 81	7,987 00	6,337 63	5,031 30	14 87	50,163 58
Total, St. Lawrence Canals	802 40	16,284 01	19,659 33	21,351 72	20,459 62	18,463 37	17,717 41	13,784 26	88 61	128,610 73
CHAMBLY CANAL.										
Chambly	.....	527 64	2,003 40	2,958 64	2,431 41	2,421 86	2,674 22	1,539 19	.....	14,556 36
St. John's	13 27	89 48	1,325 21	1,556 81	1,838 60	1,459 78	2,533 01	410 40	.....	9,226 56
St. Ours	.....	3,843 27	59 77	116 96	124 09	172 02	198 34	94 51	.....	4,608 96
Total, Chambly Canal	13 27	4,460 39	3,388 38	4,632 41	4,394 10	4,053 66	5,405 57	2,044 10	.....	28,391 88
OTTAWA CANALS.										
Ottawa	640 28	2,756 81	3,107 33	2,392 81	1,732 54	2,150 74	2,265 62	1,061 89	.....	16,108 02
Carillon	.....	9 41	20 61	13 98	6 87	5 29	1 33	0 90	.....	58 39
Grenville	.....	1,752 48	1,163 20	1,411 65	1,629 95	1,802 69	1,714 77	1,654 88	.....	11,129 62
St. Anne's	0 80	176 73	299 21	311 83	311 96	239 52	191 88	121 47	.....	1,653 40
Total, Ottawa Canals	641 08	4,695 43	4,590 35	4,130 27	3,681 32	4,198 24	4,173 60	2,839 14	.....	28,949 43

RIDEAU CANAL.										
Kingston Mills	.....	83 83	176 37	198 36	221 54	206 76	94 85	31 51	.....	1,013 22
Ottawa	.....	328 35	341 95	430 23	367 53	462 85	522 15	207 48	.....	2,660 54
Smith's Falls	.....	116 00	251 35	394 95	477 03	316 44	215 77	103 24	40 89	1,915 67
Total, Rideau Canal	.....	528 18	769 67	1,023 54	1,066 10	986 05	832 77	342 23	40 89	5,589 43
ST. PETER'S CANAL.										
St. Peter's	2 94	380 56	363 83	390 50	417 39	411 51	388 18	354 09	202 96	2,911 96
TRENT VALLEY CANALS.										
Bobcaygeon	3 00	30 51	64 13	84 34	85 50	74 60	54 20	7 63	.....	403 91
Buckhorn	.....	1 50	16 66	27 03	53 09	20 84	27 50	4 00	.....	150 62
Peterborough	.....	13 95	70 15	99 00	107 20	57 70	32 20	16 15	.....	396 35
Burleigh	2 06	9 61	29 27	35 67	15 95	28 76	25 88	47 35	.....	194 55
Hastings	.....	.....	10 20	1 75	3 75	2 50	2 50	.....	.....	20 70
Fenelon Falls	.....	20 05	13 40	25 75	19 50	28 25	16 50	19 55	.....	143 00
Total, Trent Valley Canals	5 06	75 62	203 81	273 54	284 99	212 65	158 78	94 68	.....	1,309 13
MURRAY CANAL.										
Brighton	4 69	111 68	124 95	217 27	280 13	197 38	140 33	128 96	0 50	1,205 89
Grand total	4,749 50	47,863 07	51,080 46	53,050 33	52,890 12	49,322 74	54,150 92	36,746 45	4,593 47	354,447 06

*These offices have been ordered closad.

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, June 15, 1906.

RICHARD DEVLIN,
Compiler of Canal Statistics.

No. (A) 17.—Summary Statement showing the Number, Tonnage and Nationality of 31st, 1905, and the amonnt of

Vessels.	Total Number.	From Canadian to Canadian Ports.		From Canadian to Untied States Ports.	
		Up.	Down.	Up.	Down.
Welland Canal.					
Canadian vessels, steam	519	128,964	138,373	52,130	2,253
" sail	249	23,878	19,352	26,128	2,113
Total, Canadian	768	152,842	157,725	78,258	4,366
United States vessels, steam	657	342	36	64,968	18,681
" sail	170	607	.....	7,951	8,460
Total, United States	827	949	36	72,919	27,141
Grand total, Welland Canal	1,595	153,791	157,761	151,177	31,507
St. Lawrence Canals.					
Canadian vessels, steam	3,702	447,477	381,342	40,023	17
" sail	4,082	499,276	426,994	56,949	570
Total, Canadian	7,784	946,753	808,336	96,972	587
United States vessels, steam	814	3,497	635	129,522	939
" sail	398	3,804	5,379	25,915	.....
Total, United States	1,212	7,301	6,014	155,437	939
Grand total, St. Lawrence Canals	9,996	954,054	814,350	252,409	1,526
Chambly Canal.					
Canadian vessels, steam	350	31,372	38,415	1	.....
" sail	369	6,215	10,436	4,440	.....
Total, Canadian	719	37,587	48,851	4,441	.....
United States vessels, steam	43	.....	8	401	.....
" sail	2,581	345	1,963	124,683	.....
Total, United States	2,624	345	1,971	125,084	.....
Grand total, Chambly Canal	3,343	37,932	50,822	129,525	.....
Ottawa Canals.					
Canadian vessels, steam	1,027	41,924	96,135	.....	.....
" sail	807	3,523	80,655	.....	4,202
Total, Canadian	1,834	45,447	176,790	.....	4,202
United States vessels, steam	1	14	.....	.....	.....
" sail	317	3,851	4,947	289	22,357
Total, United States	318	3,865	4,947	289	22,357
Grand total, Ottawa Canals	2,152	49,312	181,737	289	26,559
Rideau Canal.					
Canadian vessels, steam	2,890	70,364	70,127	3,625	.....
" sail	1,484	14,604	13,986	218	.....
Total, Canadian	4,374	84,968	84,113	3,843	.....

SESSIONAL PAPER No. 20a

Vessels passed through all the Canals during the Season of Navigation ended December
Tolls heretofore collected now free.

From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons.	Amount of Tolls.
Up.	Down.	Up.	Down.	Up.	Down.		
							$ cts.
165	158	2,287	50,208	183,546	190,992	374,538	6,202 79
.....	.....	2,379	31,001	52,385	52,466	104,851	2,278 55
165	158	4,666	81,209	235,931	243,458	479,389	8,481 34
198,763	168,915	16,260	99,811	280,333	287,443	567,776	8,834 07
6,490	6,780	6,867	17,175	21,915	32,415	54,330	1,133 64
205,253	175,695	23,127	116,986	302,248	319,858	622,106	9,967 71
205,418	175,853	27,793	198,195	538,179	563,316	1,101,495	18,449 05
.....	.....	.....	44,406	487,500	425,765	913,265	6,856 05
.....	541	.....	57,790	556,225	485,895	1,042,120	9,433 92
.....	541	.....	102,196	1,043,725	911,660	1,955,385	16,289 97
22,264	20,818	783	142,071	156,066	164,463	320,529	2,421 71
35	5,385	16,773	34,996	46,527	45,760	92,287	1,169 41
22,299	26,203	17,556	177,067	202,593	210,223	412,816	3,591 12
22,299	26,744	17,556	279,263	1,246,318	1,121,883	2,368,201	19,881 09
.....	.....	.....	156	31,373	38,571	69,944	252 14
.....	.....	.....	5,977	10,655	16,413	27,068	274 33
.....	.....	.....	6,133	42,028	54,984	97,012	526 47
.....	.....	.....	304	401	312	713	13 22
.....	122	.....	154,274	125,028	156,359	281,387	3,884 84
.....	122	.....	154,578	125,429	156,671	282,100	3,898 06
.....	122	.....	160.711	167,457	211,655	379,112	4,424 53
.....	.....	.....	.....	41,924	96,135	138,059	882 51
.....	.....	.....	.....	3,523	84,857	88,380	1,274 25
.....	.....	.....	.....	45,447	180,992	226,439	2,156 76
.....	.....	.....	.....	14	.....	14	25
.....	.....	.....	.....	4,140	27,304	31,444	736 95
.....	.....	.....	.....	4,154	27,304	31,458	737 20
.....	.....	.....	.....	49,601	208,296	257,897	2,893 96
.....	.....	.....	5,226	73,989	75,353	149,342	1,273 92
.....	.....	.....	654	14,822	14,640	29,462	574 94
.....	.....	.....	5,880	88,811	89,993	178,804	1,848 86

No. (A) 17.—Summary Statement showing the Number, Tonnage and Nationality of 31st, 1905, and the amount of

Vessels.	Total Number.	From Canadian to Canadian Ports.		From Canadian to Untied States Ports.	
		Up.	Down.	Up.	Down.
Rideau Canal—*Con.*					
United States vessels, steam.	141	290	261	426	.....
" sail.	200	1,512	1,839	649	980
Total, United States	341	1,802	2,100	1,075	980
Grand total, Rideau Canal	4,715	86,770	86,213	4,918	980
St. Peter's Canal.					
Canadian vessels, steam	241	13,348	14,542	.....	.....
" sail.	1,345	38,047	37,859	.....	.....
Total, Canadian	1,586	51,395	52,401	.....	.....
United States vessels, steam.	8	543	368	156	.....
" sail.	1	.....	96	.....	.....
Total, United States	9	543	464	156	.....
Grand total, St. Peter's Canal	1,595	51,938	52,865	156	.....
Trent Valley Canals.					
Canadian vessels, steam	1,582	48,209	47,268	.....	.....
" sail.	459	14,718	12,523	.....	.....
Total, Canadian	2,041	62,927	59,791	.....	.....
United States vessels, steam.	5	6	11	.....	.....
" sail.	.....	.....	.....	.....	.....
Total, United States	5	6	11	.....	.....
Grand total, Trent Valley Canals	2,046	62,933	59,802	.....	.....
Murray Canal.					
Canadian vessels, steam	537	76,459	72,893	33,757	.....
" sail.	113	3,366	2,090	3,417	.....
Total, Canadian	650	79,825	74,983	37,174	.....
United States vessels, steam.	37	.....	235	920	.....
" sail.	20	47	6	1,135	.....
Total, United States	57	47	241	2,055	.....
Grand total, Murray Canal	707	79,872	75,224	39,229	.....
Sault Ste. Marie Canal.					
Canadian vessels, steam	3,460	571,648	532,821	87,405	147,481
" sail.	510	25,705	35,955	4,680	31,502
Total, Canadian	3,970	597,353	568,776	92,085	178,983
United States vessels, steam.	1,528	3,478	2,780	6,687	24,317
" sail.	164	1,407	880	1,283	6,142
Total, United States	1,692	4,885	3,660	7,970	30,459
Grand total, Sault Ste. Marie Canal	5,662	602,238	572,436	100,055	209,442

SESSIONAL PAPER No. 20a

Vessels passed through all the Canals during the Season of Navigation ended December
Tolls heretofore collected now free.

From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons.	Amount of Tolls.
Up.	Down.	Up.	Down.	Up.	Down.		
							$ cts.
			656	716	917	1,633	36 95
			1,142	2,161	3,961	6,122	120 79
			1,798	2,877	4,878	7,755	157 74
			7,678	91,688	94,871	186,559	2,006 60
				13,348	14,542	27,890	557 81
				38,047	37,859	75,906	1,520 12
				51,395	52,401	103,796	2,077 93
				699	368	1,067	21 34
					96	96	1 92
				699	464	1,163	23 26
				52,094	52,865	104,959	2,101,19
				48,209	47,268	95,477	469 18
				14,718	12,523	27,241	107 05
				62,927	59,791	122,718	576 23
				6	11	17	1 25
				6	11	17	1 25
				62,933	59,802	122,735	577 48
			31,518	110,216	104,411	214,627	221 98
	4		856	6,783	2,950	9,733	31 43
	4		32,374	116,999	107,361	224,360	253 41
883	131		242	1,803	608	2,411	9 25
	120		758	1,182	884	2,066	6 86
883	251		1,000	2,985	1,492	4,477	16 11
883	255		33,374	119,984	108,853	228,837	269 52
8,375	2,488	216,073	90,673	883,501	773,463	1,656,964	
3,280		41,662	3,540	75,327	70,997	146,324	
11,655	2,488	257,735	94,213	958,828	844,460	1,803,288	
1,953,206	1,397,653	50,408	4,280	2,013,779	1,429,030	3,442,809	
168,853	101,780	10,445	750	181,988	109,552	291,540	
2,122,059	1,499,433	60,853	5,030	2,195,767	1,538,582	3,734,349	
2,133,714	1,501,921	318,588	99,243	3,154,595	2,383,042	5,537,637	

No. (A) 17.—Summary Statement showing the Number,

RECAPITU

Vessels.	Total Number.	From Canadian to Canadian Ports.		From Canadian to United States Ports.	
		Up.	Down.	Up.	Down.
Canadian Vessels.					
Steam and Sail.					
Welland	768	152,842	157,725	78,258	4,366
St. Lawrence	7,784	946,753	808,336	96,972	587
Chambly	719	37,587	48,851	4,441	.....
Ottawa	1,834	45,447	176,790	.....	4,202
Rideau	4,374	84,968	84,113	3,843	.....
St. Peter's	1,586	51,395	52,401	.....	.....
Frent Valley	2,041	62,927	59,791	.....	.....
Murray	650	79,825	74,983	37,174	.....
Sault Ste. Marie	3,970	597,353	568,776	92,085	178,983
Total, Canadian	23,726	2,059,097	2,031,766	312,773	188,138
United States Vessels.					
Welland	827	949	36	72,919	27,141
St. Lawrence	1,212	7,301	6,014	155,437	939
Chambly	2,624	345	1,971	125,084	.....
Ottawa	318	3,865	4,947	289	22,357
Rideau	341	1,802	2,100	1,075	980
St. Peter's	9	543	464	156	.....
Trent Valley	5	6	11	.....	.....
Murray	57	47	241	2,055	.....
Sault Ste. Marie	1,692	4,885	3,660	7,970	30,459
Total, United States	7,085	19,743	19,444	364,985	81,876
Grand total, Canadian and United States	30,811	2,078 840	2,051,210	677,758	270,014

Department of Railways and Canals.
Ottawa, June 15, 1906.

SESSIONAL PAPER No. 20a

Tonnage and Nationality of Vessels, &c.—*Concluded.*

LATION.

From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons.	Amount of Tolls.
Up.	Down.	Up.	Down.	Up.	Down.		
							$ cts.
165	158	4,666	81,209	235,931	243,458	479,389	8,481 34
	541		102,196	1,043,725	911,660	1,955,385	16,289 97
			6,133	42,028	54,984	97,012	526 47
				45,447	180,992	226,439	2,156 76
			5,880	88,811	89,993	178,804	1,848 86
				51,395	52,401	103,796	2,077 93
				62,927	59,791	122,718	576 23
	4		32,374	116,999	107,361	224,360	253 41
11,655	2,488	257,735	94,213	958,828	844,460	1,803,288	
11,820	3,191	262,401	322,005	2,646,091	2,545,100	5,191,191	32,210 97
205,253	175,695	23,127	116,986	302,248	319,858	622,106	9,967 71
22,299	26,203	17,556	177,067	202,593	210,223	412,816	3,591 12
	122		154,578	125,429	156,671	282,100	3,898 06
				4,154	27,304	31,458	737 20
			1,798	2,877	4,878	7,755	157 74
				699	464	1,163	23 26
				6	11	17	1 25
883	251		1,000	2,985	1,492	4,477	16 11
2,122,059	1,499,433	60,853	5,030	2,195,767	1,538,582	3,734,349	
2,350,494	1,701,704	101,536	456,459	2,836,758	2,259,483	5,096,241	18,392 45
2,362,314	1,704,895	363,937	778,464	5,482,849	4,804,583	10,287,432	40,603 42

RICHARD DEVLIN,
Compiler of Canal Statistics.

APPENDIX A—*Continued.*

No. (A) 18—Comparative Statement of Grand Total Freight passed through the undermentioned Canals during the Seasons of Navigation 1904 and 1905, and the Amount of Tolls heretofore collected, now free, on the same, including Tolls on Vessels and Passengers.

Canals.	From Canadian to Canadian Ports.		From Canadian to United States Ports.		From United States to United States Ports.		From United States to Canadian Ports.		Tons.		Total Tons.	Amount of Tolls.
	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.	Up.	Down.		
1904.												$ cts.
Welland	45,056	197,135	49,297	56,785	87,144	165,337	3,711	206,906	185,208	626,163	811,371	117,562 01
St. Lawrence	293,359	602,675	121,910	.....	1,578	2,162	14,699	390,933	431,546	995,770	1,427,316	111,726 25
Chambly	5,463	11,890	319,652	.....	.....	.....	.....	111,282	325,015	123,172	448,187	27,451 87
Ottawa	562	309,144	.....	26,287	.....	.....	.....	.....	562	335,431	335,993	22,244 72
Rideau	20,981	19,968	839	4,251	.....	.....	.....	9,081	21,820	33,300	55,120	4,804 98
St. Peter's	22,851	50,115	.....	.....	.....	.....	450	.....	23,301	50,115	73,416	2,745 75
Trent Valley	32,185	13,504	.....	.....	.....	.....	.....	.....	32,185	13,504	45,689	1,333 15
Murray	13,278	9,807	3,662	.....	.....	.....	.....	1,692	16,940	11,499	28,439	1,097 82
Sault Ste. Marie	173,002	833,261	16,627	189,255	611,062	2,611,404	464,935	131,159	1,265,626	3,765,079	5,030,705	No Tolls.
Grand total	606,737	2,047,499	511,887	276,578	699,784	2,778,903	483,795	851,053	2,302,203	5,954,033	8,256,236	288,966 55
1905.												
Welland	50,321	257,434	54,169	62,510	112,549	190,547	15,020	349,500	232,059	859,991	1,092,050	157,478 61
St. Lawrence	329,363	751,571	148,493	2,144	308	1,796	.....	511,172	486,172	1,266,683	1,752,855	128,610 73
Chambly	5,665	14,787	342,017	.....	.....	.....	.....	114,597	317,682	129,387	447,069	28,391 88
Ottawa	263	316,030	.....	74,478	.....	.....	.....	.....	263	390,508	390,771	28,949 43
Rideau	21,939	22,233	1,049	3,694	.....	.....	.....	10,949	22,988	36,876	59,864	5,589 43
St. Peter's	27,951	53,126	.....	.....	.....	.....	.....	.....	27,951	53,126	81,077	2,911 96
Trent Valley	27,618	17,613	.....	.....	.....	.....	.....	.....	27,618	17,613	45,231	1,309 13
Murray	14,801	10,904	1,416	.....	.....	.....	.....	2,300	16,217	13,204	29,421	1,205 89
Sault Ste. Marie	259,055	808,816	32,221	204,263	494,371	2,991,552	534,500	148,628	1,320,147	4,153,259	5,473,406	No Tolls.
Grand total	736,976	2,252,514	549,365	347,089	607,228	3,183,895	557,528	1,137,146	2,451,097	6,920,647	9,371,744	354,447 06

Department of Railways and Canals,
Ottawa, June 15, 1906.

RICHARD DEVLIN,
Compiler of Canal Statistics.

SESSIONAL PAPER No. 20a

APPENDIX A—*Continued.*

No. 19.—COMPARATIVE STATEMENT of the Traffic of all the Canals for the Years ending December 31, 1904 and 1905.

Articles.	1904.	1905.	Increase.	Decrease.
Class No. 1.	Tons.	Tons.	Tons.	Tons.
Canadian Vessels, steam	3,392,010	3,640,106	248,096	
United States Vessels, steam	3,216,234	4,533,851	1,317,617	
Canadian vessels, sail	1,191,714	1,354,203	162,489	
United States vessels, sail	628,047	759,272	131,225	
Total, class No. 1	8,428,005	10,287,432	1,859,427	
Class No. 2.	No.	No.	No.	No,
Passengers	219,137	233,545	14,408	
Class No. 3.	Tons.	Tons.	Tons.	Tons.
Bricks	9,097	23,814	14,717	
Brimstone	1,525	1,177		348
Cement and water lime	25,539	31,942	6,403	
Clay, lime and sand	88,262	110,918	22,656	
Fish	3,336	3,881	545	
Gypsum	651	280		371
Iron (railway)	40,461	57,515	17,054	
" (pig)	30,785	29,237		1,548
" (all other)	51,875	58,508	6,633	
Steel	4,300	5,661	1,361	
Salt	20,258	28,148	7,890	
Stone, for cutting	586	3		583
Apples	11,865	9,217		2,648
Barley	75,538	114,226	39,688	
Buckwheat	689	721	32	
Corn	189,739	261,509	71,770	
Cotton (raw)		2	2	
Flax and hemp	673	64		609
Flour	260,630	243,938		16,692
Hay (pressed)	32,576	33,354	778	
Meals (all kinds)	24,174	14,832		9,342
Oil cake	10,037	11,557	520	
Oats	72,723	101,258	28,535	
Pease	2,051	950		1,101
Potatoes	5,351	7,420	2,069	
Rye	1,481	5,303	3,822	
Flax seed	46,591	69,576	22,985	
Seeds (all kinds)	5,477	3,740		1,737
Tobacco (raw)	85	239	154	
Wheat	1,202,716	1,248,567	45,851	
All other agricultural products, vegetable	2,688	6,470	3,782	
Bones	20	52	32	
Cattle	1,766	1,468		298
Hogs	299	445	146	
Hides and skins, horns and hoofs	134	137	3	
Horses	1,605	1,564		41
Lard and lard oil	591	3,299	2,708	
Meats (other than pork	175	434	259	
Pork	1,337	1,213		124
Sheep	605	616	11	
Tallow	130	587	457	
Wool	1,646	2,489	843	
All other agricultural products, animal	11,734	12,477	743	
Total, class No. 3	2,241,801	2,508,808	302,449	35,442
Class No. 4.				
Ashes, pot and pearl	63	57		6
Agricultural implements	973	1,102	129	
Crockery and earthenware	1,336	2,047	711	
Dye woods and dye stuffs	114	30		84
Furniture	2,720	5,075	2,355	
Glass (all kinds)	4,647	6,086	1,439	
Marble	22	2,475	2,453	
Manilla	659	1,544	885	
Molasses	1,542	2,232	690	
Nails	9,412	17,374	7,962	
Oil (in barrels)	22,288	32,006	9,718	
Paint	3,112	3,890	778	
Pitch and tar	1,455	1,243		212

No. 19.—Comparative Statement of the Traffic of all the Canals for the Years ending December 31, 1904 and 1905.—*Concluded.*

Articles.	1904.	1906.	Increase.	Decrease.
Class No. 4—Concluded.	Tons.	Tons.	Tons.	Tons.
Rags	737	616	.....	121
Rosin	3,827	3,526	.....	301
Soda ash	1,872	1,073	.....	799
Sugar	9,203	27,275	18,072	.....
Stone (wrought)	680	228	.....	452
Tin	1,818	5,174	3,356	.....
Turpentine	34	41	7	.....
White lead	859	1,386	527	.....
Whiting	940	905	.....	35
Whiskey and all other spirits	5,396	6,680	1,284	.....
Merchandise (not enumerated)	240,547	331,487	80,940	.....
Total, class No. 4	314,256	453,552	141,306	2,010
Class No. 5.				
Bark	75	117	42	.....
Barrels (empty)	957	1,996	1,039	.....
Floats	47,427	44,241	.....	3,186
Fire wood (in vessels)	440,254	423,693	.....	16,561
" (in rafts)	28,929	.....	.....	28,929
Lumber sawn (in vessels)	476,436	591,028	114,592	.....
" (in rafts)	451	354	.....	97
Hoops	2	8	6	.....
Railway ties (in vessels)	3,798	7,470	3,672	.....
" (in rafts)	195	.....	.....	195
Masts, spars and telegraph poles (in vessels)	4,693	632	.....	4,061
" " (in rafts)	20,313	10,999	.....	9,314
Square timber (in vessels)	43,557	13,215	.....	30,342
" (in rafts)	13,025	15,807	2,782	.....
Woodenware and wood partly manufactured	508	1,160	652	.....
Shingles	10,770	16,300	5,530	.....
Split posts and fence rails	1,697	773	.....	924
" " (in rafts)	1	.....	.....	1
Saw logs	26,630	58,949	32,319	.....
Staves and headings (barrel)	699	10	.....	689
" " (sale barrels)	727	.....	.....	727
Traverses	260	200	.....	60
Hop poles	232	3	.....	229
Total, class No. 5	1,121,636	1,186,955	160,634	95,315
Special Class.				
Coal	1,570,113	1,596,935	26,822	.....
Kyrolite or chemical ore	974	987	13	.....
Iron ore	2,482,181	2,959,300	477,119	.....
Copper ore	9,852	11,006	1,154	.....
Stone (unwrought not suitable for cutting)	22,921	31,706	8,785	.....
Ice	80	.....	.....	80
Total, special class	4,086,121	4,599,934	513,893	80
Total freight	7,763,814	8,749,249	985,435	.....
Timber and other wood, free	64,808	68,629	3,821	.....
Wheat, corn, flour, iron, salt, coal, &c., free	427,614	553,866	126,252	.....
Grand totals (passengers and tonnage of vessels not included)	8,256,236	9,371,744	1,115,508	.....
Total, increase and decrease	.....	.....	1,248,355	132,847
Freight, grand total, increase	.....	.....	1,115,508	.....

Department of Railways and Canals,
Ottawa, June 15, 1906.

RICHARD DEVLIN,
Compiler of Canal Statistics.

APPENDIX A—*Continued.*

No. (A) 20.—STATEMENT of the Number and Tonnage of all kinds of Vessels passed through the Canals during the Season of Navigation in 1905.

WELLAND CANAL.

	CANADIAN.				UNITED STATES.			
	Steam Vessels.		Sailing Vessels.		Steam Vessels.		Sailing Vessels.	
Tonnage.	Number.	Total Tonnage.	Number.	Total Tonnage.	Number.	Total Tonnage.	Number.	Total Tonnage.
8	23	184	14	112	13	104	5	40
10	6	60	4	40	4	40	2	20
15	6	90	1	15	4	60	2	30
20	7	140	2	40	2	40	.....	.....
25	3	75	.....	.....	1	25	.....	.....
30	7	210	1	30	1	30	.....	.....
35	6	210	.....	.....	3	105	.....	.....
40	2	80	2	80	1	40	1	40
45	.....	.....	.....	.....	.....	.....	.....	.....
50	1	50	9	450	2	100	6	300
55	1	55	.....	.....	2	110	.....	.....
60	3	180	.....	.....	1	60	.....	.....
65	.....	.....	.....	.....	1	65	.....	.....
70	2	140	.....	.....	.....	.....	.....	.....
75	.....	.....	1	75	.....	.....	1	75
80	.....	.....	1	80	.....	.....	1	80
85	1	85	.....	.....	.....	.....	.....	.....
90	.....	.....	.....	.....	.....	.....	.....	.....
95	2	190	.....	.....	1	95	.....	.....
100	1	100	2	200	1	100	.....	.....
110	3	300	1	110	3	330	.....	.....
130	1	130	.....	.....	1	130	1	130
150	2	300	2	300	1	150	3	450
160	1	160	.....	.....	.....	.....	.....	.....
165	1	165	2	330	.....	.....	2	330
175	.....	.....	.....	.....	2	350	4	700
190	1	190	.....	.....	.....	.....	.....	.....
195	.....	.....	1	195	.....	.....	.....	.....
220	2	440	1	220	2	440	.....	.....
230	1	230	1	230	.....	.....	1	230
260	3	780	1	260	3	780	1	260
265	.....	.....	.....	.....	1	265	.....	.....
285	1	285	.....	.....	2	570	1	285
295	1	295	1	295	.....	.....	.....	.....
305	4	1,220	1	305	1	305	1	305
310	1	310	1	310	.....	.....	1	310
315	.....	.....	1	315	.....	.....	2	630
320	1	320	1	320	1	320	.....	.....
330	.....	.....	1	330	.....	.....	.....	.....
360	3	1,080	3	1,080	3	1,080	1	360
400	2	800	.....	.....	.....	.....	.....	.....
415	2	830	2	830	.....	.....	.....	.....
455	2	910	.....	.....	.....	.....	.....	.....
460	1	460	1	460	.....	.....	.....	.....
485	4	1,940	1	485	2	970	1	485
495	2	990	.....	.....	.....	.....	.....	.....
500	1	500	.....	.....	.....	.....	1	500
520	.....	.....	.....	.....	1	520	.....	.....
530	1	530	.....	.....	2	1,060	.....	.....
555	2	1,110	.....	.....	.....	.....	.....	.....
560	1	560	.....	.....	1	560	.....	.....
575	.....	.....	1	575	.....	.....	.....	.....
585	.....	.....	.....	.....	.....	.....	1	585
595	.....	.....	1	595	.....	.....	.....	.....
600	1	600	.....	.....	.....	.....	.....	.....
615	.....	.....	.....	.....	2	1,230	1	615
645	.....	.....	1	645	.....	.....	.....	.....
660	.....	.....	.....	.....	2	1,320	.....	.....

No. (A) 20.—Statement of the Number and Tonnage of all kinds of Vessels, &c.—*Continued.*

Welland Canal—*Concluded.*

Canadian.					United States.			
Steam Vessels.			Sailing Vessels.		Steam Vessels.		Sailing Vessels.	
Tonnage.	Number.	Total Tonnage.	Number.	Total Tonnage.	Number.	Total Tonnage.	Number.	Total Tonnage.
675					1	675		
690	1	690			1	690		
719	1	719					1	719
739							1	739
742	2	1,484						
759	1	759	1	759				
771	1	771						
802	2	1,604	1	802	1	802		
870	1	870			1	870	1	870
882			1	882	1	882	1	882
908			1	908	1	908	1	908
929	1	929			2	1,858		
940					2	1,880		
959			1	959	1	959		
977	2	1,954			4	3,908		
989	1	989			1	989		
994	1	994			2	1,968		
1,023	2	2,046						
1,029					1	1,029		
1,035	2	2,070			1	1,035	1	1,035
1,041	1	1,041	1	1,041	1	1,041		
1,054					1	1,054		
1,078	1	1,078			2	2,156	2	2,156
1,118	1	1,118			1	1,118	1	1,118
1,160	2	2,320			2	2,320	2	2,320
1,172	2	2,344					1	1,172
1,202	1	1,202					1	1,202
1,203	2	2,406			1	1,203		
1,330	1	1,330			2	2,660		
1,425	1	1,425			1	1,425		
1,441					1	1,441		
1,447					1	1,447		
1,550	1	1,550			2	3,100		
1,553	11	1,553			2	3,106		
1,553	1	1,553			2	3,106		
1,565	1	1,565			1	1,565		
Total....	149	52,125	68	14,663	105	53,443	53	19,881

St. Lawrence Canals.

8	63	504	2	16	29	232		
10	16	160	2	20	1	10		
15	19	285			8	120		
20	10	200			4	80	1	20
25	12	300	2	50				
30	10	300	2	60				
35	8	280	1	35	2	70		
40	7	280	4	160	2	80		
45	5	225	3	135	2	90		
50	15	750	6	300				
55	2	110	2	110	1	55		
60	11	660	3	180				
65	4	260	4	260	2	130		
70	9	630	1	70	1	70		
75	4	300	4	300	2	150		

No. (A) 20.—STATEMENT of the Number and Tonnage of all kinds of Vessels, &c.—*Continued.*

ST. LAWRENCE CANALS—*Continued.*

	CANADIAN.				UNITED STATES.			
	Steam Vessels.		Sailing Vessels.		Steam Vessels.		Sailing Vessels.	
Tonnage.	Number.	Total Tonnage.	Number.	Total Tonnage.	Number.	Total Tonnage.	Number.	Total Tonnage.
80	2	160	5	400				
85	7	595	5	425			5	425
90	7	630	7	630	1	90	8	720
95	4	380	13	1,235	7	695	46	4,370
100	10	1,000	10	1,000	3	300	45	4,500
105	5	525	9	45			11	1,155
110	3	330	3	330	3	330	10	1,210
115	2	230	10	1,150	1	115	9	1,035
120	3	360	9	1,080			1	120
125	2	250	6	750			1	125
130	3	390	2	260	1	130		
135	1	135	5	675			2	270
140	4	560	1	140				
145	2	290	17	2,425				
150	3	450	13	1,950				
155	2	310	16	2,480				
160	3	480	8	1,280	2	320	1	160
165	2	330	8	1,320				
170	1	170	2	340				
175	2	350	2	350	1	175		
180	3	540	1	180				
185			3	555			1	185
190	1	190	1	190				
195	2	390	3	585				
200	2	400	1	200				
210	1	210	1	210				
225	2	450	1	225				
230	1	230	2	460				
240	2	480	2	480	1	240		
255	4	1,020	3	765				
260	2	520	2	520				
265			2	530	1	265		
275			2	550				
280			1	280			1	280
285			2	570	1	285	1	285
290			3	870				
295	2	590	3	885			1	295
300	1	300	2	600				
305	1	305	3	915				
310	1	310	2	620	1	310		
315	2	630	2	630				
320			5	1,600			1	320
325	2	650	1	325				
330			2	660				
335	1	335	5	1,675				
340	1	340	3	1,020				
345								
360	2	720	2	720	1	360		
365			4	1,460				
370	1	370	3	1,110				
375			1	375	1	375		
380	1	380	1	380				
385			2	770			1	385
395	1	395	3	1,185				
412	1	412	2	824				
419			2	838				
434			1	434			1	434

No. (A) 20.—STATEMENT of the Number and Tonnage of all kinds of Vessels, &c.—*Continued.*

ST. LAWRENCE CANALS—*Concluded.*

	CANADIAN.				UNITED STATES.			
	Steam Vessels.		Sailing Vessels.		Steam Vessels.		Sailing Vessels.	
Tonnage.	Number.	Total Tonnage.	Number.	Total Tonnage.	Number.	Total Tonnage.	Number.	Total Tonnage.
439	2	878	1	439			1	439
440								
450								
462			2	924				
471	3	1,413						
475			1	475				
479	1	479					1	479
480	2	960	2	960	1	480		
484	2	968			1	484		
487			1	487				
499			1	499				
500	2	1,000						
508	1	508						
516			4	2,064				
518	1	518	1	518	1	518		
530	1	530						
539			1	539				
541	1	541	1	541				
544			2	1,088				
567			1	567				
578	3	1,734	1	578				
585			1	585				
586	1	586	1	439				
590			1	590				
599	1	599						
607	1	607	2	1,214				
620					1	620		
648	1	648			1	680		
680	2	1,360	1	680				
715	2	1,430						
719			1	719			1	719
740	2	1,480	1	740				
781	1	781						
803					1	803		
864					1	864		
868	2	1,736			2	1,736	1	868
911					1	911		
920					4	3,680		
929					2	1,858		
944					2	1,888	1	944
952								
955					2	1,910		
970			1	970	2	1,940		
987			2	1,974	3	2,961		
997	2	1,994						
1,020	2	2,040					1	1,020
1,038	1	1,038					2	2,076
1,083							1	1,083
1,041					1	1,041		
1,147								
1,171	1	1,171			1	1,171	3	3,513
1,187	1	1,187					2	2,380
1,190	1	1,190						
1,201			1	1,201	1	1,201		
1,310							1	1,310
1,453	1	1,453						
1,609			1	1,609				
Total....	341	53,165	298	64,557	107	29,823	162	13,125

No. (A) 20.—Statement of the Number and Tonnage of all kinds of Vessels, &c.—*Continued.*

Rideau, Ottawa and Chambly Canals.

	Canadian.				United States.			
	Steam Vessels.		Sailing Vessels.		Steam Vessels.		Sailing Vessels.	
Tonnage.	Number.	Total Tonnage.	Number.	Total Tonnage.	Number.	Total Tonnage.	Number.	Total Tonnage.
8	98	784	151	1,208	31	248	10	80
10	20	200	5	50	5	50	.....	.....
15	3	45	2	30	5	75	.....	.....
20	4	80	2	40	2	40	.....	.....
25	2	50	4	100	2	50	1	25
30	2	60	3	90	1	30	.....	.....
35	.....	.....	4	150	2	70	.....	.....
40	.....	.....	1	40	.....	.....	.....	.....
45	3	135	5	225	2	90	.....	.....
50	7	350	6	300	.....	.....	.....	.....
50	.....	.....	2	110	.....	.....	.....	.....
60	1	60	1	60	.....	.....	.....	.....
65	.....	.....	.....	.....	.....	.....	.....	.....
70	1	70	2	150	.....	.....	.....	.....
75	.....	.....	.....	.....	1	75	.....	.....
80	.....	.....	.....	.....	.....	.....	3	240
85	1	85	2	170	1	85	18	680
90	1	90	3	270	.....	.....	70	6,300
95	2	190	5	475	.....	.....	322	28,980
100	1	100	2	200	.....	.....	60	6,000
105	.....	.....	4	425	.....	.....	33	3,795
110	1	110	2	220	.....	.....	41	4,510
115	.....	.....	5	575	.....	.....	11	1,265
120	.....	.....	2	240	.....	.....	3	360
125	.....	.....	2	250	.....	.....	6	750
130	.....	.....	2	260	.....	.....	5	650
135	.....	.....	5	675	.....	.....	2	270
140	.....	.....	7	980	.....	.....	.....	.....
140	.....	.....	7	980	.....	.....	.....	.....
145	.....	.....	11	1,595	.....	.....	1	145
150	2	300	16	2,400	.....	.....	2	300
155	.....	.....	11	2,705	.....	.....	.....	.....
160	.....	.....	3	480	.....	.....	.....	.....
165	.....	.....	5	825	.....	.....	.....	.....
170	.....	.....	4	680	.....	.....	.....	.....
175	1	175	1	178	.....	.....	.....	.....
180	.....	.....	2	360	.....	.....	.....	.....
185	2	370	.....	.....	.....	.....	.....	.....
195	1	195	1	193	.....	.....	.....	.....
225	1	225	1	225	.....	.....	.....	.....
245	.....	.....	2	490	.....	.....	.....	.....
250	.....	.....	1	250	.....	.....	.....	.....
260	1	260	1	260	.....	.....	.....	.....
265	1	265	.....	.....	.....	.....	.....	.....
270	.....	.....	1	270	.....	.....	.....	.....
275	.....	.....	1	275	.....	.....	.....	.....
285	.....	.....	1	285	.....	.....	.....	.....
295	2	590	.....	.....	.....	.....	.....	.....
300	.....	.....	1	300	.....	.....	.....	.....
325	1	325	.....	.....	.....	.....	.....	.....
375	.....	.....	1	375	.....	.....	.....	.....
397	.....	.....	1	397	.....	.....	.....	.....
Total..	159	5,114	292	19,838	52	813	588	54,350

Department of Railways and Canals,
Ottawa, June 15, 1906.

RICHARD DEVLIN,
Compiler of Canal Statistics.

APPENDIX

No. (A) 21.—STATEMENT showing the Classified Tonnage of all kinds of

WELLAND

CANADIAN.

Class.	Steam Vessels.	No.	Tonnage.	Class.	Sailing Vessels.	No.	Tonnage.
1	250 to 1,565 tons.....	76	48,331	1	250 to 1,041 tons.....	23	12,156
2	200 " 249 "	3	670	2	200 " 249 "	2	450
3	150 " 199 "	5	815	3	150 " 199 "	5	825
4	100 " 149 "	5	560	4	100 " 149 "	3	310
5	50 " 99 "	10	700	5	50 " 99 "	11	605
6	Under 50 "	60	1,049	6	Under 50 "	24	317
	Total	159	52,125		Total	68	14,663

ST. LAWRENCE

1	250 to tons.....	64	37,106	1	250 to tons.....	96	41,511
2	200 " 249 "	8	1,770	2	200 " 249 "	7	1,575
3	150 " 199 "	19	3,210	3	150 " 199 "	57	9,230
4	100 " 149 "	35	4,070	4	100 " 149 "	72	7,855
5	50 " 99 "	65	4,475	5	50 " 99 "	50	3,910
6	Under 50 "	150	2,534	6	Under 50 "	16	476
	Total	341	53,165		Total	298	64,557

RIDEAU, OTTAWA

1	250 to 325 tons.....	5	1,440	1	250 to 397 tons.....	8	2,412
2	200 " 249 "	1	225	2	200 " 249 "	3	715
3	150 " 199 "	6	1,040	3	150 " 199 "	43	7,823
4	100 " 149 "	2	210	4	100 " 149 "	40	5,420
5	50 " 99 "	13	845	5	50 " 99 "	21	1,535
6	Under 50 "	132	1,354	6	Under 50 "	177	1,933
	Total	159	5,114		Total	292	19,838

DEPARTMENT OF RAILWAYS AND CANALS,
OTTAWA, June 15, 1906.

A—*Concluded.*

Vessels passed through the Canals during the season of Navigation, 1905.

CANAL.

UNITED STATES.

Class.	Steam Vessel.	No.	Tonnage.	Class.	Sailing Vessel.	No.	Tonnage.
1	250 to 1,565 tons.....	59	51,069	1	250 to 1,202 tons.....	24	17,456
2	200 " 249 "	2	440	2	200 " 249 "	1	230
3	150 " 199 "	3	500	3	150 " 199 "	9	1,480
4	100 " 149 "	5	560	4	100 " 149 "	1	130
5	50 " 99 "	7	430	5	50 " 99 "	8	455
6	Under 50 "	29	444	6	Under 50 "	10	130
	Total	105	53,443		Total	53	19,881

CANALS.

1	250 to tons.....	33	26,341	1	250 to tons.....	21	16,830
2	200 " 249 "	1	240	2	200 " 249 "	.....	.....
3	150 " 199 "	3	495	3	150 " 199 "	2	345
4	100 " 149 "	8	875	4	100 " 149 "	79	8,415
5	50 " 99 "	14	1,190	5	50 " 99 "	59	5,515
6	Under 50 "	48	682	6	Under 50 "	1	20
	Total	107	29,823		Total	162	31,125

AND CHAMBLY CANALS.

1	250 to tons.....	.....	.....	1	250 to tons.....	.....	.....
2	200 " 249 "	.....	.....	2	200 " 249 "	.....	.....
3	150 " 199 "	.....	.....	3	150 " 199 "	2	300
4	100 " 149 "	.....	.....	4	100 " 149 "	162	17,745
5	50 " 99 "	2	160	5	50 " 99 "	413	36,200
6	Under 50 "	50	653	6	Under 50 "	11	105
	Total	52	813		Total	588	54,350

RICHARD DEVLIN,
Compiler of Canal Statistics.

CANALS

CONSOLIDATED

No. 22.—RATES OF TOLLS ON THE CANALS

WELLAND, ST. LAWRENCE, RIDEAU, OTTAWA, CHAMBLY AND MURRAY CANALS.

(O. C., April 18, 1873.)

The Rates of Tolls are divided into Six Classes, as under, and are per ton, unless otherwise specified.	Welland Canal, westward.	Welland Canal, eastward.	Lake Erie to Montreal.	St. Lawrence Canals, each way.	Chambly Canal and St. Ours Lock.	Rideau Canal, each way.	Ottawa Canals, and St. Ann's Lock, each way.	Ottawa to St. Johns, each way.	Murray Canal, each way.
Class No. 1.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Vessel, steam.....per ton	01½	0 01½	0 02¼	0 00¾	0 00¾	0 01½	0 00⅝	0 01½	0 3/16
" sail and other.....	0 02¼	0 02¼	0 03¾	0 01½	0 01¼	0 02¼	0 01	0 02⅝	0 1/16
Class No. 2.									
Passengers, 21 years of age and upwards...	0 10	0 10	0 20	0 10	0 05	0 08	0 02½	0 09¾	0 1¼
" under 21 years each.....	0 05	0 05	0 10	0 05	0 02	0 04	0 01¼	0 04½	0 0⅝
Class No. 3.									
Bricks, cement and water lime.....									
Clay, lime and sand.....									
Brimstone.....									
Corn.....									
Flour.....									
Iron, railway.....									
" pig.....									
" all other, including steel (O.C., Feb. 1, 1888).....									
Plaster, gypsum.....	15	0 20	0 20	0 15	0 10	0 07	0 06	0 19¾	0 1⅞
Salt.....									
Salt meats or fish, in barrels or otherwise...									
Agricultural products, vegetable, not enumerated.....									
Agricultural products, animal, not enumerated.....									
Stone, for cutting.....									
Wheat.....									
Class No. 4.									
All other articles not enumerated.....	0 15	20	0 20	0 20	0 10	0 26	0 14	0 29	0 2½

REVENUE

TARIFF OF TOLLS

OF THE DOMINION OF CANADA, 1902.—(1905—Free, O.C., April 27, 1903.)

TRENT VALLEY CANALS.

(O. C., July 25, 1888.)

1st Section.	2nd Section.	3rd Section.	4th Section.	Through.	Peterborough to Hastings, each way.
Fenelon Falls to Bobcaygeon.	Bobcaygeon to Buckhorn.	Buckhorn to Burleigh.	Burleigh to Lakefield.	Fenelon Falls to Lakefield.	Tolls Chargeable at Peterborough and Hastings.
Tolls Chargeable at Fenelon Falls.	Tolls Chargeable at Bobcaygeon.	Tolls Chargeable at Buckhorn.	Tolls Chargeable at Burleigh.	Tolls Chargeable at Fenelon Falls.	
$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
0 00 3/16 0 00 1/4	0 00 3/16 0 00 1/4	0 00 3/16 0 00 1/4	0 00 3/16 0 00 1/4	0 00 3/4 0 01	0 00 3/16 0 00 1/4
01 0 00 1/2	0 01 0 00 1/2	0 01 0 00 1/2	0 01 0 00 1/2	0 04 0 02	0 01 0 00 1/2
01	01	01	01	0 04	0 01
0 03	0 3	0 03	0 03	0 12	0 03

RATES OF TOLLS

WELLAND, ST. LAWRENCE, RIDEAU, OTTAWA, CHAMBLY AND MURRAY CANALS

The Rates of Tolls are divided into Six Classes, as under, and are per ton, unless otherwise specified.	Welland Canal, westward.	Welland Canal, eastward.	Lake Erie to Montreal.	St. Lawrence Canals, each way.	Chambly Canal and St. Ours Lock, each way.	Rideau Canal, each way.	Ottawa Canals and St. Ann's Lock, each way.	Ottawa to St. Johns, each way.	Murray Canal, each way.
Class No. 5.									
Bark	0 20	0 20	0 20	0 15	0 10	0 07	0 06	0 19½	0 01⅞
Barrels, empty, each	0 02	0 02	0 02	0 02	0 02	0 02	0 01	0 03½	0 00½
Boat knees, each	0 05	0 05	0 05	0 02	0 02	0 02	0 01	0 03½	0 00½
Floats, per 1,000 lineal feet	1 40	1 40	1 40	1 40	1 20	1 05	0 50	2 05	0 17½
Firewood, per cord, in vessels	0 20	0 20	0 20	0 20	0 10	0 15	0 08	0 23	0 02½
" " rafts	0 25	0 25	0 25	0 25	0 15	0 19	0 09	0 30½	0 03½
Hoops	0 25	0 25	0 25	0 20	0 15	0 15	0 10	0 30	0 02½
Masts and spars, telegraph poles, per ton of 40 cubic feet, in vessels	0 15	0 15	0 15	0 05	0 05	0 08	0 07	0 13½	0 00⅝
Masts and spars, telegraph poles, per ton of 40 cubic feet, in rafts	0 20	0 20	0 20	0 10	0 10	0 15	0 10	0 22½	0 01¼
Railway ties, in vessels, each	0 01	0 01	0 01	0 00½	0 00½	0 00¾	0 00¾	0 01⅝	0 00⅛
" rafts, each	0 02	0 02	0 02	0 01	0 01	0 02	0 01	0 02¼	0 00⅛
Sawed stuff, boards, plank, scantling and sawed timber, per M feet, board measure, in vessels	0 30	0 30	0 30	0 15	0 10	0 11¼	0 06¾	0 20	0 01⅞
Sawed stuff, boards, plank, scantling and sawed timber, per M feet, board measure, in rafts	0 60	0 60	0 60	0 30	0 20	0 19	0 09	0 36½	0 03⅜
Square timber, per M cubic feet, in vessels	3 00	3 00	3 00	1 00	1 00	0 56	0 44	1 69	0 12½
" " rafts	4 50	4 50	4 50	2 00	2 00	1 12	0 63	3 13	0 25
Wagon stuff, woodenware and wood, partly manufactured, per ton of 40 cubic feet	0 40	0 40	0 40	0 40	0 25	0 30	0 20	0 55	0 05
Shingles, per M	0 06	0 06	0 06	0 06	0 04	0 04½	0 02½	0 08	0 00¾
Split posts and fence rails, per M, in vessels	0 40	0 40	0 40	0 40	0 20	0 23	0 12	0 42	0 05
" " " rafts	0 80	0 80	0 80	0 80	0 40	0 38	0 17	0 77	0 10
Saw-logs, each, standard log	0 08	0 08	0 08	0 08	0 05	0 06	0 06	0 13	0 01
Staves and headings, barrel, per M	0 08	0 08	0 08	0 04	0 15	0 15	0 10	0 30	0 02½
" " pipe, per M	1 50	1 50	1 50	1 00	1 00	0 75	0 50	1 75	0 12½
" " West India, per M	0 75	0 75	0 75	0 60	0 25	0 45	0 25	0 65	0 07½
" " salt barrel, sawn or cut, per M	0 08	0 08	0 08	0 04	0 03	0 03	0 02	0 06	0 00½
Traverses, per 100 pieces	0 50	0 50	0 50	0 50	0 40	0 38	0 15	0 67½	0 06¼
Hop poles, per 1,000 pieces	2 00	2 00	2 00	2 00	1 50	1 50	0 65	2 65	0 25
Special Class.									
Gypsum, crude (per O.C., Oct. 28, 1892)	0 15	0 05	0 05	0 05	West ward				
Coal	0 20	0 20	0 20	0 15	0 10	0 08	0 05	0 17¾	0 01⅞
Stone, unwrought, carded, and not suitable for cutting, per cord	0 75	0 75	0 75	0 60	0 37½	0 28	0 24	0 77½	0 07½
Kryolite, iron ore or chemical ore	0 05	0 05	0 05	0 05	0 05	0 05	0 05	0 05	0 05
Ice	0 05	0 05	0 05	0 05	0 05	0 05	0 05	0 11	0 05

SESSIONAL PAPER No. 20a

ON THE CANALS—*Continued.*

TRENT VALLEY CANALS.

1st Section.	2nd Section.	3rd Section.	4th Section.	Through.	Peterborough to Hastings, each way.
Fenelon Falls to Bobcaygeon.	Bobcaygeon to Buckhorn.	Buckhorn to Burleigh.	Burleigh to Lakefield.	Fenelon Falls to Lakefield.	
Tolls Chargeable at Fenelon Falls.	Tolls Chargeable at Babcaygeon.	Tolls Chargeable at Buckhorn.	Tolls Chargeable at Burleigh.	Tolls Chargeable at Fenelon Falls.	Tolls Chargeable at Peterborough and Hastings.
$ cts.	$ cst.	$ cts.	$ cts.	$ cts.	$ cts.
0 01	0 01	0 01	0 01	0 04	0 01
0 00¼	0 00¼	0 00¼	0 00¼	0 01	0 00¼
0 00¼	0 00¼	0 00¼	0 00¼	0 01	0 00¼
0 13	0 13	0 13	0 13	0 52	0 13
0 03	0 03	0 03	0 03	0 10	0 03
0 04	0 04	0 04	0 04	0 14	0 04
0 02	0 02	0 02	0 02	0 08	0 02
0 02	0 02	0 02	0 02	0 08	0 02
0 01	0 01	0 01	0 01	0 04	0 01
0 00½	0 00½	0 00½	0 00½	0 00½	0 00½
0 00¼	0 00¼	0 00¼	0 00¼	0 01	0 00¼
0 03	0 03	0 03	0 03	0 10	0 03
0 04	0 04	0 04	0 04	0 14	0 04
0 07	0 07	0 07	0 07	0 28	0 07
0 14	0 14	0 14	0 14	0 56	0 14
0 04	0 04	0 04	0 04	0 16	0 04
0 00¾	0 00¾	0 00¾	0 00¾	0 03	0 00¾
0 03	0 03	0 03	0 03	0 12	0 03
0 05	0 05	0 05	0 05	0 20	0 05
0 00¾	0 00¾	0 00¾	0 00¾	0 03	0 00¾
0 02	0 02	0 02	0 02	0 08	0 02
0 10	0 10	0 10	0 10	0 40	0 10
0 05½	0 05½	0 05½	0 05½	0 22	0 05½
0 00½	0 00½	0 00½	0 00½	0 02	0 00½
0 05	0 05	0 05	0 05	0 20	0 05
0 20	0 20	0 20	0 20	0 80	0 20
Free.	Free.	Free.	Free.	Free.	Free.
0 01	0 01	0 01	0 01	0 04	0 01
0 03½	0 03½	0 03½	0 03½	0 14	0 03½
0 00¾	0 00¾	0 00¾	0 00¾	0 03	0 00¾
Free.	Free.	Free.	Free.	Free.	Free

St. Peter's Canal.

Sec. **2.** On each and every vessel passing through the said canal, two cents per ton on the vessel and one cent per ton on the freight, each way. O. C. June 23, 1883. Con. O. C. Oct. 26, 1889, sec. 109. Free, O.C., April 27, 1903.

SPECIAL REGULATIONS RELATING TO TOLLS ON SOME OF THE CANALS.

Sec. **3.** Coal may pass up all canals, except the Welland Canal, free of toll. O. C. June 6, 1869. Con. O. C. Oct. 26, 1889, sec. 83. Free, O.C., April 27, 1903.

Sec. **4.** Logs, lumber or other produce may pass free of toll down the Chippawa Creek, between the Aqueduct and Port Robinson. O. C. May 18, 1863. Con. O. C. Oct. 26, 1889, sec. 84.

Sec. **5.** (*a.*) In view of the dam constructed across the Ottawa River at Carillon whereby the passage of the rapids at that point through the river is rendered difficult and at times impracticable, it appears necessary, owing to the continued difficulty attending passage through the slide built in the dam, that the canal should be used by rafts and until otherwise ordered, free passage be given to rafts through the Carillon Canal, subject to such regulations as the Department of Railways and Canals may find necessary in the interest of the traffic of the canal to adopt. O. C. July 6, 1888.

Sec. **5.** (*b.*) "Save in cases for which special permission may be given the Grenville Canal is closed to the passage of rafts, or any portion of a raft of any kind whatever." O. C. June 27, 1890.

Sault Ste. Marie Canal.

Sec. **6.** All vessels and freight shall be permitted to pass through the Sault Ste. Marie Canal free of toll upon such vessels and freight, until otherwise ordered.

Sec. **7.** (*a.*) All up bound goods on which full tolls have been paid for passage through the whole of the St. Lawrence Canals, or for passage through the Lachine Canal, the Ottawa and Rideau Canals or for passage through the Ottawa and Rideau Canals shall be entitled to pass free through the Welland Canal, or any portion thereof, and tolls paid for passage through the Chambly Canal, on goods thereafter so becoming entitled to the above privilege, shall be refunded at Montreal. All down bound goods on which full tolls have been paid for passage through the Welland Canal shall be entitled to pass free through any or all of the above mentioned Canals, or through any portion thereof. O. C. May 17, 1897.

(*b.*) All articles, goods or merchandise, not enumerated above, shall be charged to class No. 4. O. C. April 18, 1873. Con. O. C. Oct. 26, 1889, sec. 86.

Sec. **8.** Goods shipped to any port west of the St. Lawrence Canals, tolls upon which have already been paid for passage through such canals, may be re-shipped from such port and be passed through the Welland Canal free of tolls, in the same way as if they had been shipped through direct in the first instance; and goods going eastward, having paid Welland Canal tolls, may be transhipped at any port on Lake Ontario, and thereafter pass free through the St. Lawrence Canals, as if they had been shipped through direct in the first instance. O. C. June 23, 1883. Con. O. C. Oct. 26, 1889, sec. 87.

Sec. **9.** Iron ore, kryolite or chemical ore, may pass through one section, or through all the canal sections aforesaid, for 5 cents per ton. Free, O.C., April 27, 1903.

Sec. **10.** No let-passes shall be issued to steam tugs or other small vessels for less than 25 cents, as a minimum charge; but such vessels, not carrying freight or passengers, can obtain, on payment of $30 a season "Let-Pass," which will pass them up and down the canals as often as desired. O. C. April 18, 1873. Con. O. C. Oct. 26, 1889, sec. 86. Free, O.C., April 27, 1903.

Sec **11.** All vessels owned or chartered by persons having contracts for the enlargements or repair of any of the canals, and employed by them in removing earth or carrying materials necessary for the prosecution of such works, shall be entitled to pass through such canals free of toll upon such vessel and cargo. O. C. April 22, 1884. Con. O. C. Oct. 26, 1889, sec. 35.

Sec. **12.** Government dredges and scows shall be permitted to pass through the canals free of tolls, but that such dredges and scows shall not be so passed as to interfere with the passage of other vessels of any kind whatever. O. C. May 18, 1891.

HARBOUR DUES.

Sec. **13.** Vessels receiving or discharging freight at the premises of the Welland Railway, at Ports Colborne or Dalhousie, are to be free from harbour dues; but all other vessels discharging or receiving cargo at Port Dalhousie, Port Colborne or Port Maitland, shall pay on every ton of freight so received or discharged, two cents. O. C. April 18, 1873. Con. O. C. Oct. 26, 1889.

WAY RATES.

Sec. **14.** The following way rates are to be levied on vessels and property passing the several subdivisions of the Canals:—

Welland Canal.

	Rate.
1. From Port Maitland, Dunnville and Port Colborne to Port Robinson or Allanburg, not passing the lock, each way	½
2. From Chippawa Cut, or any part thereof, to Dunnville, Port Maitland or Port Colborne	½
3. From Dunnville to Port Colborne	
4. From Thorold to St. Catharines or Port Dalhousie	
5. From Maitland, Dunnville, Colborne or Port Robinson to Marshville and intermediate places	½
6. From Marshville or intermediate places to Port Maitland, Dunnville, Port Colborne and Port Robinson	½
7. From Port Robinson to Allanburg or Thorold	½
8. From Port Robinson to St. Catharines or Port Dalhousie	½
9. From St. Catharines to Port Dalhousie	
10. From Dunnville to Maitland	½
11. From Port Robinson through the Lock and Chippawa Cut	
12. Form Port Colborne to Port Maitland	
13. From Chippawa Cut through Lock to Port Robinson	½
14. From Colborne, Dunnville, Maitland and Marshville to Thorold	½
15. From Colborne, Dunnville, Maitland and Marshville to St. Catharines	½
16. Through the Chippawa Cut only	½
17. Through the Port Robinson Lock only	½

St. Lawrence Canals.

Sec. **15.** The navigation is divided into four sections, viz., Cardinal, Cornwall, Beauharnois or Soulanges and Lachine. Tolls are to be levied on all vessels and property in proportion to the number of sections passed through.

Chambly Canal.

	Rate.
Sec. **16.** Vessels and property passing from Sorel to Chambly, to pay	½
Vessels and property passing from Chambly to St. Johns, to pay	½

Ottawa Canals.

Sec. **17.** The navigation is divided into three sections, viz., Grenville, Carillon and Ste. Anne's. Tolls are to be levied on all vessels and property in proportion to the number of sections passed through.

Rideau Canal.

Sec. **18.** The navigation of this canal is divided into three sections, viz., Ottawa, Smith's Falls and Kingston Mills. Vessels and freight passing one section are to be charged one-third; two sections, two-thirds. O.C. April 18, 1873. Con. O.C. Oct. 26, 1889, secs. 77, 78, 79, 80 and 81.—

Tay Canal to be part of the Rideau Canal and the following rates of tolls to be levied upon the said Tay Branch of the Rideau Canal system, viz.:—

Perth to Smith's Falls, 1 section, or one-third of Rideau Canal rates, each way.

Perth to Kingston, 2 sections, or two-thirds Rideau Canal rates, each way.

Perth to Ottawa Basin, 2 sections, or two-thirds Rideau Canal rates, each way.

Perth to River Ottawa, 3 sections, full Rideau Canal rates, each way. O.C. Sept. 27, 1890.

General.

Sec. **19.** (*a.*) Any fraction of a ton freight is to be charged one ton, and portions of sections are to be charged as a whole section on all the above canals.

(*b.*) The passing of saw-logs or other lumber through any of the canals, or sections thereof, shall be at all times governed by the regulations for their management. O.C. April 18, 1873. Con. O.C. Oct. 26, 1889, sec. 82.

Sec. 20.—STANDARD FOR ESTIMATING WEIGHTS, FOR CANAL TOLLS.

—	Tons.	—	Tons.
2,000 lbs. avoirdupois	1	Sheep, 20	1
Per M. is per thousand feet		Stone, 12 cubic feet	1
Per mile is per thousand pieces		Stone, 1 cord	7½
Green fruit, 9 barrels are	1	Whisky, 4 barrels or 215 gallons	1
Ashes, 3 barrels are	1	Empty barrels, 10	1
Bark, 4 cords	1	Barrel hoops, 10 mille	1
Beef, 7 barrels	1	Board and other sawed lumber, 600 feet board measure	1
Biscuit and crackers, 9 barrels	1	Boat knees, 4	1
Bricks, common, 1,000	2	Firewood, 1 cord	3
Butter, 22 kegs or 7 barrels	1	Hop poles, 60 or 40 cubic feet	1
Cattle, 3	1	Shingles, 12 M. or bundles	1
Cement and water lime, 7 barrels	1	Split posts and fence rails, 1 mille	1
Fire-bricks, 1,000	3	Staves and headings, pipe, 1 mille	8
Fish, 7 barrels	1	" " W. India, 1 mille	4
Flour, 9 barrels	1	" " barrel, 1 mille	2½
Gypsum and manganese, 6 barrels	1	" " salt barrel, 1 mille	0⅝
Horses, 2	1	Saw-logs, standard, 1	0⅞
Lard and tallow, 7 barrels or 22 kegs	1	Square timber, 50 cubic feet	1
Liquors and spirits, 215 gallons	1	Telegraph poles, 10, or 40 cubic feet	1
Liquids, all others, 215 gallons	1	Masts and spars, 40 cubic feet	1
Nuts, 9 barrels	1	Railroad ties, 16, or 50 cubic feet	1
Oysters, 6 barrels	1	All other woodenware, or partly manufactured wood, 40 cubic feet as per tariff	1
Pork, 7 barrels	1	Traverses, 40 cubic feet, or 5 pieces	1
Refined oil in bulk, 250 gals., O.C., July 24, '00	1	Floats, 50 lineal feet	1
Salt, 7 barrels	1		
Seeds, 9 barrels	1		

NOTE.—By the Weights and Measures Act, chapter 104 of the Revised Statutes of Canada, section 14, all the following named articles are to be estimated by the cental of 100 lbs.

The weight equivalent to a bushel being as follows:—Wheat, 60 lbs.; Indian corn, 56 lbs.; rye, 56 lbs.; pease, 60 lbs.; barley, 48 lbs.; oats, 34 lbs.; beans, 60 lbs.; clover seed, 60 lbs.; timothy seed, 48 lbs.; buckwheat, 48 lbs.; flax seed, 50 lbs.; blue grass seed, 14 lbs.; hemp seed, 44 lbs.; malt, 36 lbs.; castor beans, 40 lbs.; potatoes, turnips, carrots, parsnips, beets and onions, 60 lbs.; bituminous coal, 70 lbs.

TOLLS AT SHEDS AT LACHINE CANAL BASIN.

Sec. 21. The following tolls shall be levied upon property stored at the sheds at the Lachine Canal Basin:—

			Cents.
Wheat and other grain,	per week,	per bushel	1
Meal	"	per barrel	4
Pork, beef, butter and lard	"	"	5
Muscovado sugar	"	per hhd., 10 cents; per brl	5
Liquors	"	per pipe, 15 cents; per pun	12
		per hhd., 10 cents; per qr. cask	7
Iron, bars	"	per ton	24
Iron, pig	"	"	12
Salt, except at the St. Gabriel sheds	"	per 100 minots	36
Salt at the St. Gabriel sheds, Montreal, after the first 48 hours	"	per bag	½
Bales, crates, cases, &c.	"	per ton weight or measurement	24
Coals	"	per chaldron	12

Sec. 22. (*a.*) No charge shall be made for property stored in the sheds of the Lachine Canal Basin for the first forty-eight hours, after which period, except in the case of flour, the foregoing rate of storage for the use of the sheds are to be raised, levied and collected.

(*b.*) Articles unenumerated are to be charged according to the above rates as nearly as the same can be computed.

(*c.*) All property stored in the sheds remaining after the first forty-eight hours will be liable to one week's storage, although it should only have been stored for a portion of the same, and so on for each succeeding week.

(*d.*) The labour of receiving property into the sheds and delivering the same shall be at the expense of and be furnished by the owners of the property or their agents.

(*e.*) All property stored in these sheds shall be at the risk of the proprietor from damage by fire or otherwise.

(*f.*) All dues for storage shall be paid before the removal of the property. O. C. August 21, 1846, October 28, 1846. Con. O. C. Oct. 26, 1889, secs. 90 and 91.

Flour.

Sec. **23.** (*a.*) Flour shall be allowed to remain in the sheds for two whole days free of charge.

(*b.*) If kept there beyond two days or 48 hours, such flour shall be liable to a charge of one cent per day per barrel for the first four days after the expiration of the 48 hours of the exemption.

(*c.*) Should the flour be kept in the sheds beyond four days at one cent per day per barrel, it shall be liable to pay two cents per day per barrel for every day subsequent to the expiration of such four days.

(*d.*) Any part of a day shall be considered as one day. O. C. May 31, 1856. Con. O. C. Oct. 26, 1889, sec. 92.

WHARFAGE DUES ON COAL FOR LOCAL CONSUMPTION IN MONTREAL.

Sec. **24.** Coal for local consumption in Montreal, landed on canal property between Montreal Harbour and Lachine, O.C., April 22, 1902, from vessels other than sea-going, and entering the Lachine Canal from Montreal Harbour, shall be charged wharfage dues at the rate of five cents a ton.

Coal screening shall be charged 3 cents a ton. Con. O. C. Oct. 26, 1889, sec. 93. O. C. May, 18, 1892.

CHARGES FOR WHARFAGE ON FIREWOOD ON WHARFS AND BANKS OF LACHINE CANAL.

Sec. **25.** The following rates of tolls shall be collected as herein mentioned that is to say:—

(*a.*) Firewood landed on wharfs or banks of the Lachine Canal, or in boats, barges or other craft occupying any of the basins between Wellington Street Bridge and Lock No. 3, four cents per cord, and for every day the wood is allowed to remain in either the canal or basin, or on the wharfs or banks after the first five days, an additional charge of four cents per cord. O. C. August 7, 1860. Con. O. C. Oct. 26, 1889, sec. 94.

(*b.*) The clause next preceding shall not only apply to the rates of toll to be collected on firewood on wharfs at Lachine and the Lachine Canal and basin, but are also extended and made applicable to the banks and grounds at Côte St. Paul and at Lachine. O. C. Jan. 27, 1862. Con. O. C. 1889, sec. 94.

CANAL BASINS IN MONTREAL PART OF MONTREAL HARBOUR.

Sec. **26.** Whereas under existing regulations for the collection of canal tolls, eastern bound vessels having paid the charges one way in full through the Welland Canal are chargeable one Section Canal Toll if re-entering the Lachine Canal;

And whereas vessels loaded with grain destined for the Montreal Harbour frequently unload only part of their cargoes on board sea-going vessels in the harbour, and re-enter the Lachine Canal for the purpose of unloading the balance of their cargoes either in elevators or mills located along the canal basins;

It is ordered that the Lachine Canal basins, within the Montreal city limits, be considered as part of the Montreal Harbour, in so far only as regards the collection of tolls on the class of vessels above referred to, which re-enter that portion of the canal for the purpose of unloading the balance of their cargoes, but that the same shall not apply any further, as in the event of vessels returning to the harbour to take cargo, in which case the usual toll shall be charged against them on passing out of the canal a second time into the harbour. O. C. Aug. 8, 1878. Con. O. C. Oct. 26, 1889, sec. 95. Free O.C. April 27, 1903.

PHOSPHATES.

Sec. **27.** Whereas vessels laden with grain for delivery in Montreal Harbour frequently carry also deck loads of phosphates, and being compelled to proceed at once to the harbour for the discharge of the grain, they pay tolls through to that point, subsequently re-entering the Lachine Canal for the storage of the phosphates, and in accordance with the existing regulations, paying canal dues a second time for such re-entry;

It is ordered that the Lachine Canal basins, within the Montreal city limits, be considered as part of the Montreal Harbour, for the purpose of the unloading of phosphates carried by vessels in addition to their grain cargoes as described in this section; it being, however, provided that in the event of their returning to the harbour to take cargo, the usual tolls shall be charged against such vessels on their passing out of the canal a second time. O. C. July 12, 1881. Con. O. C. Oct. 26, 1889, sec. 96. Free, O.C., April 27, 1903.

Extract from the Act, Canada, 1894, c. 48, amending and consolidating the Acts relating to the Harbour Commissioners of Montreal.

HARBOUR RATES WHARFAGE DUES IN ALL BASINS OF THE LACHINE CANAL ON SEA-GOING VESSELS.

Sec. **28.** The corporation may, from time to time, levy such rates as are approved of by the Governor in Council, upon all goods landed or shipped in the harbour, moved by rail on the harbour tracks, or deposited within the harbour, except arms, ammunition and military accoutrements, and other munitions of war for the use of the Government or for the defence of the Dominion. 40 V., c. 53, s. 2, part 2. For the purposes of this section, the lower basins of the Lachine Canal shall be held to form part of the harbour of Montreal, and the corporation may levy from all vessels entering the same through the harbour for the purpose of discharging or loading there, except canal craft trading between Montreal and places above Montreal, the same rates as may be levied in the harbour and under the same regulations and penalties. In all other respects the said lower basins shall be and remain under the jurisdiction of the Minister of Railways and Canals. 18 V., c. 143, s. 18; 40 V., c. 53, s. 2, part 2.

All property delivered or received by sea-going vessels in the Lachine Canal basins at Montreal (except the old lower basin) shall be charged wharfage dues as follows:—

All goods, wares and merchandise not elsewhere specified	25	cents per ton.
Hay, straw, pig and scrap iron, pot and pearl ashes	20	"
Apples, crates and their contents, flour and meal, fish, meats, pitch, potatoes, tar, horses, neat cattle, sheep and swine	15	"
Ballast, clay, fire-bricks, gypsum, lime, marble, phosphate, sand, salt	10	"
Coal and coke, grain and seeds of all kinds	6	"
Special—Bricks, 10 cents per 1,000; cordwood, 5 cents per cord; lumber, 10 cents per 1,000 feet, board measure.		
Bullion specie	Free.	
Coal screenings	3	"

Each entry shall pay not less than 5 cents.

All property landed on the canal wharfs for re-shipment, or transhipped in canal waters, shall pay one wharfage only.

Lumber upon which tolls have been paid for passage down the Lachine Canal, and which is re-shipped from the wharfs or vessels into sea-going vessels, shall pay wharfage dues equal to one section of canal tolls, viz., $3\frac{3}{4}$ cents per 1,000 feet board measure. O.C. Jan. 26, 1883. Con. O.C. Oct. 26, 1889, secs. 98, 99, 100 and 101. O.C. May 18, 1892.

Sec. **29.**—*Standard for Estimating Weights.*

Ashes, pot or pearl	3 brls. to 1 ton.
Apples, flour, meal, potatoes	9 " 1 "
Fish, meat, pitch, tar	7 " 1 "
Horses	2 to 1 ton.
Neat cattle	3 to 1 "
Sheep	15 to 1 "
Swine	10 to 1 "

O.C. April 1, 1881. Con. O.C. Oct. 26, 1889, sec. 102.

TOLLS ON FLOATED TIMBER, ETC., ENTERING THE BASIN AT LACHINE.

Sec. **30.** The following rates of tolls shall be collected on floated timber, lumber and firewood entering the basin at Lachine and Lachine Canal:—

Kinds of Timber.	For receiving Timber, &c., to include use of Basin and Wharf for one Month.	For each succeeding month during the Season of Navigation.	For Wintering in Basin or on Wharf.
	Cents.	Cents.	Cents
Timber, square or round, of all kinds, above 12 x 12, per M cubic feet	25	20	35
Timber, round or flatted, of all kinds, under 12 x 12, per M lineal feet	20	15	30
Planks and boards to include all kinds of sawed lumber in rafts, per M feet, board measure	3	2	3
Saw logs, 12 feet long, if longer in same proportion per log	1	$\frac{1}{2}$	2
Floats, per 100	10	5	10
Traverses, per 100	10	5	10
Fence posts and rails, per M	10	5	10
Staves, barrel, per M	8	4	8
" pipe "	8	4	8
" West India, per M	8	4	8
Firewood on bank of canal between Lock No. 3 and Lock No. 5, and also on wharfs in canal basin at Lachine	3	3	3

Note.

Sec. **31.** (*a.*) No allowance shall be made for fractional parts of a month or winter season.

(*b.*) The firewood shall be corded across the bank while being delivered from the boat in such manner and at such points as the superintending engineer may direct.

(*c.*) The rates on timber to take effect upon the completion of the booms in Lachine Canal. O.C. June 8, 1860. Con. O.C. Oct. 26, 1889, secs. 103 and 104.

SESSIONAL PAPER No. 20a

CHARGES ON VESSELS WINTERING IN LACHINE AND WELLAND CANALS.

Sec. **32.** The following rates per ton shall be charged for wintering vessels in the Lachine Canal, viz. :—For each boat, barge, scow or other vessel of ten tons measurement or under, seventy cents per vessel for the entire winter, and every ten tons above the first ten, an additional rate of eight cents, O.C. Aug. 22, 1879. Con. O.C. Oct. 26, 1889, sec. 97.

Sec. **32** (*a.*) The above rates shall also apply to the Welland Canal. (O.C. June 8th. 1901.)

CHARGES FOR WINTERING VESSELS IN RIDEAU CANAL.

Sec. **33.** The winterage dues for vessels wintering in the canal basin, at Ottawa or other points along the line of the Rideau Canal, shall be as follows :—

In canal basin, Ottawa,	steamers per season		$ 8 00
"	"	barges "	4 00
Inside locks	"	steamers "	50 00
other stations	"	"	15 00

If the Minister of Railways and Canals deems it advisable, he is authorized to take security from parties wintering their vessels in locks against damage to Government property by fire. O.C. March 19, 1887. Con. O.C. Oct. 26, 1889, sec. 105.

CHARGES FOR WINTERING VESSELS IN THE OTTAWA RIVER CANALS AND LOCKS.

Sec. **34.** The charge for vessels wintering on the Ottawa River canals and locks, and the same is hereby prescribed accordingly, namely :

In Carillon Canal,	steamers per season		$ 8 00
"	barges	"	4 00
Grenville Canal,	steamers	"	8 00
"	barges	"	4 00
Inside Locks, Ste. Anne, Carillon and Grenville Canals, steamers per season			25 00
"	Culbute Canal, per season		15 00

Such security against damage by fire to be taken by way of bond as, in the opinion of the Minister o Railways and Canals, may seem desirable. O.C. Oct. 14, 1892.

Sec. **35.** No charges to be made for vessels wintering outside the locks of any government canal. O.C. Dec. 12, 1889.

CHARGES FOR REPAIRING VESSELS ON THE BANKS OF CANALS.

Sec. **36.** (*a.*) Persons using the banks of the Lachine Canal as a site for the repair of their vessels shall be subject to a charge of four dollars, payable in advance, for each vessel ; the period during which such site may be occupied under any one payment being limited to six months, and permission for repairing being first obtained from the proper officer, in conformity with the existing canal regulations.

(*b.*) In the event of failure to remove vessels so occupying the banks at the expiration of the period named, no fresh permits having been obtained, such vessels may be sold under the 16th section of the canal regulations. O.C. March 5, 1880. Con. O.C. Oct. 26, 1889, sec. 106.

Sec. **37.** Rules with respect to the repairing of vessels on the banks of the Lachine Canal, the Beauharnois and the Chambly :—

(*a.*) Repairs shall only be executed at such points as may be indicated and approved by the superintending engineer.

(*b.*) For each vessel hauled up or beached for repairs, a charge of one dollar, over and above all other charges, shall be made, carrying the privilege of remaining one month, a further sum of one dollar being charged for each additional month, or fraction of a month, the vessel may remain.

(*c.*) In cases, however, where a vesssel hauled up for repairs upon the canal bank remains there throughout the winter, a charge of four dollars only shall be made (in addition to the ordinary winterag dues), the period covered being from the 1st of November to the 1st of June, inclusive.

(*d.*) Any vessel remaining on the canal bank after having wintered thereon shall be charged at the rate of one dollar a month or fraction of a month of her subsequent stay.

(*e.*) Any vessel remaining more than one year on the bank of the canal shall for such time as she may remain in excess of that period pay at the rate of two dollars a month or fraction of a month throughout the whole year.

(*f.*) All charges shall be payable at the collector's office in advance on the first day of each month.

(*g.*) These rules shall be understood as applying to all cases where the canal bank is used in any manner for the repairs of vessels, whether such vessels are actually hauled up or not. O. C. August 6, 1881. Con. O. C. Oct. 26, 1889, sec. 107.

DRY DOCK CHARGES.

Trent Valley Canal.

Sec. **38.** The following tolls and dues shall be charged for the use of the dry dock at Bobcaygeon, and of any of the locks on the Trent Valley Canal, during the winter or other shorter period:—

For Vessels	Wintering.	Per day.	Per week.
Over 15 tons	$30 00	$4 00	$12 00
15 tons and under	20 00	3 00	10 00

(O. C. Oct. 31, 1890.)

Rideau Canal.

Sec. **39.** The following tariff of tolls and regulations shall be, and the same are hereby established for the use of the dry dock on the Rideau Canal at Ottawa:—

(1) Steamers entering dock	$ 8 00
Each day or portion of a day after day of entrance	2 50
(2) Barges entering dock	5 00
Each day or portion of a day after day of entrance	2 50
(3) Steam yachts or launches	5 00
Each day or portion of a day after day of entrance	2 50
(4) Boats wintering in the dry dock from the close to the opening of navigation	50 00
For every day such boat remains in the dock after the opening of navigation	8 00

(5) No vessel of any class shall be in the dock over six days after notice is given in writing by the lockmaster that the dock is required for another vessel unless a satisfactory agreement between all parties interested is arrived at.

(6) All entrances and discharge of vessels are covered by entrance fee.

(7) All drying off of vessels of all classes in the locks at Ottawa or Hartwell's during the season of navigation is prohibited unless for special reasons.

The owners of vessels of all classes to render the required assistance to open and close the gate under the supervision of the superintending engineer.

Vessel owners to supply all blocks, &c., to shove their boats up to make the necessary repairs and all refuse to be properly cleared out to the entire satisfaction of the lockmaster before leaving the dock.

(O. C. Dec. 28, 1893.)

Sec. **40.** The use of horses for towage purposes between the lower entrance of the Cornwall Canal and lock No. 20, be prohibited during the works of enlargement of that portion of the Cornwall Canal.

(O.C. Aug. 20, 1890.)

Sec. **41.** As the prohibition of the use of horses for towing purposes, between the lower entrance of the Cornwall Canal and Lock No. 20 during the progress of the works of canal enlargement, has entailed the use of tugs and consequently expenses to the parties concerned, that all tugs, used solely for the purposes of towing on the section in question, be permitted to pass free of toll, up and down the canal between the lower entrance of the canal and lock No. 20, until the completion of the enlargement of the works on that section. (O. C. Sept. 27, 1890.)

SPECIAL RATES FOR 1902 ONLY.—1903. Free.

Sec. **42.** For season of 1902 the Canal Tolls for the passage of the following food products:—wheat, Indian corn, pease, barley, rye, oats, flax seed and buckwheat, for through passage eastward through the Welland Canal, be ten cents per ton, and for through passage eastward through the St. Lawrence Canals only, ten cents per ton; payment of the said toll of ten cents per ton through the Welland Canal to entitle these products to free passage through the St. Lawrence Canals, or any portion thereof. (O. C. April 1, 1902.) Also special rates, are granted to grain, &c., carried on the O. A. & P. S. and Canada Atlantic Railway systems, from Depot Harbour to Coteau Landing and thence by Canal to Montreal, as follows, viz.:—Wheat, Indian corn, pease, barley, rye, oats, flaxseed and buckwheat, 2½ cents per ton, and all rolling and package freight, 5 cents per ton. (O. C. April 1, 1902.) Free, O.C., April 27, 1903.

Sec. **43.** *(a.)* That for the current season of navigation of 1902, there shall be allowed in the case of steamships specially chartered for the conveyance of excursion parties, going and coming the same day, a reduction of one-half of the usual passenger tolls for passage through the Government canals, it being distinctly understood that no freight is to be carried by the said steamers on such excursions. (O. C. April 25, 1902.) Free, O.C., April 27, 1903.

Sec. **43.** *(b.)* Whereas the Canal Tolls payable for passage through the Welland and St. Lawrence Canals of barrel staves and headings, are 40 cents per 1,000 in the case of ordinary materials, such as those for sugar and flour barrels; while in the case of staves and headings for salt barrels the charge is 8 cents per 1,000 only.

And whereas application is made to have this distinction removed on the ground that sugar and flour cooperage is of the same weight as salt cooperage.

His Excellency in virtue of the provisions of chapter 38 of the Revised Statutes of Canada, intituled An Act respecting the Department of Railways and Canals," and by and with the advice of the Queen's Privy Council for Canada, is pleased to order that Class 5 of the existing Tariff of tolls for passage through the Canals of the Dominion, established by the Order in Council of the 25th March, 1895, shall be and the same is hereby amended to the effect, and to that effect only, of removing the distinction between ordinary and salt barrel staves and headings, and making the tolls payable for these articles the same, namely, those present charged on salt barrel staves and headings, on all the Canals of the Dominion. (O. C. May 28, 1897.)

SPECIAL RATES ON SAND AND STONE.

Sec. **43.** *(c.)* On the recommendation of the Acting Minister of Railways and Canals, the rate of tolls on sand and stone used in the construction of the bridge being built at Cornwall by the Ottawa and New York Railway was reduced from 15 and 20 cents to 7½ and 10 cents respectively. (O. C. August 27, 1898.)

APPENDIX B

DOMINION CANALS

The canal systems of the Dominion, under government control in connection with lakes and navigable rivers, are as follows :—

First.—The through route between Montreal and the head of Lake Superior (14 feet minimum depth of water.)

	Miles.
1. Lachine Canal	8½
Lake St. Louis and River St. Lawrence	16
2. Soulanges Canal	14
Lake St. Francis and River St. Lawrence	33
3. Cornwall Canal	11
River St. Lawrence	5
4. Farran's Point Canal	1½
River St. Lawrence	10
5. Rapide Plat Canal	3¾
River St. Lawrence	4
6. Galops Canal	7½
River St. Lawrence and Lake Ontario	236
7. Welland Canal	26¾
Lake Erie, Detroit River, Lake St. Clair, Lake Huron, &c.	580
8. Sault Ste. Marie Canal	1¼
Lake Superior to Port Arthur	266
Total	1,223 7/12
To Duluth	1,357
Chicago	1,286

Second.—Ottawa to Lake Champlain.

1. Grenville. 2. Carillon. 3. St. Anne's. 4. Chambly. 5. St. Ours Canals.

Third.—Ottawa to Kingston and Perth.

1. Rideau Canal.

Fourth.—Lake Ontario at Trenton to Lake Huron at mouth of River Severn.

1. Trent Canal (not completed).

Fifth.—Ocean to the Bras d'Or Lakes.

1. St. Peter's Canal.

SESSIONAL PAPER No. 20a

RIVER ST. LAWRENCE AND LAKES.

The River St. Lawrence with the system of canals established on its course above Montreal, and the Lakes Ontario, Erie, St. Clair, Huron and Superior, with connecting canals, afford a course of water communication extending from the Straits of Belle Isle to Port Arthur, at the head of Lake Superior, a distance of 2,200 statute miles. The distance to Duluth is 2,343 statute miles. The distance to Chicago, 2,272 miles.

From the Straits of Belle Isle, at the mouth of the St. Lawrence, to Montreal, the distance is 986 miles. From Quebec to Montreal, the distance is 160 miles. Owing to the shallowness of the waters on a portion of the river between these two places, particularly through Lake St. Peter, vessels drawing more than from ten to twelve feet were formerly barred from passage for the greater part of the season of navigation. In 1826, the question of deepening the channel was first definitely mooted, but it was not until 1844 that any dredging operations were begun. In that year, the deepening of a new straight channel was commenced, but the scheme was abandoned in 1847. In 1851 the deepening of the present channel was begun. At that time the depth of the channel at low water was 10 feet 6 inches. By the year 1869, this depth had been increased to 20 feet, by 1882 to 25 feet, and by the close of 1888 the depth of 27½ feet, at low water, was attained for a distance of 108 miles from Montreal to a point within tidal influence. This work is now being continued by the government of Canada, which in 1888, under the provisions of the Act 51 Vic., ch. 5, of that year, assumed the indebtedness. The channel has a minimum width of 300 feet, extending to 550 feet at points of curvature. The channel is lighted and buoyed.

Navigation, which is closed by ice during the winter months, opens about the end of April.

Montreal has by this work been placed at the head of ocean navigation, and here the canal systems of the River St. Lawrence begin, overcoming the various rapids by which the river channel upwards is obstructed, and giving access through the St. Lawrence canals, the Welland canal, the great lakes and the Sault Ste. Marie canal, to the head of Lake Superior.

The difference in level between the point on the St. Lawrence, near Three Rivers, where tidal influence ceases, and Lake Superior, is about 600 feet.

The Dominion canals, constructed between Montreal and Lake Superior, are the Lachine, Soulanges, Cornwall, Farran's Point, Rapide Plat, Galops, Murray, Welland and Sault Ste. Marie. Their aggregate length is 73 miles; total lockage (or height directly overcome by locks), 551 feet. The number of locks through which a vessel would pass in its passage from Montreal, at the head of ocean navigation, to the head of Lake Superior is 48. The Soulanges canal takes the place of the Beauharnois canal; the latter may be abandoned for navigation purposes.

Communication between Lakes Huron and Superior is obtained by means of the Canadian Sault Ste. Marie canal, and also by the St. Mary's Falls canal, situated on the United States side of the River St. Mary. Both these canals are free of toll.

It is important to note that the enlargement of the canals on the main route between Montreal and Lake Erie comprises locks of the following minimum dimensions: Length, 270 feet; width, 45 feet; depth of water on sills, 14 feet. The length of the vessels to be accommodated is limited to 255 feet. At Farran's, in the canal of that name, the lock is 800 feet long. A similar lock is built at Iroquois on the Galops canal, the object being to pass a full tow at one lockage.

LACHINE CANAL.

Length of canal	8½ statute miles.
Number of locks	5
Dimension of locks	270 feet by 45 feet.
Total rise or lockage	45 feet.
Depth of water on sills. at two locks	18 "
Depth of water on sills. at three locks	14 "
Average width of new canal	150

The old lift locks, 200 feet by 45 feet, are still available, with 9 feet of water on mitre sills.

The canal consists of one channel, with two distinct systems of locks, the old and the enlarged. There are two lock entrances at each end.

The canal extends from the city of Montreal to the town of Lachine, overcoming the St. Louis rapids, the first of the series of rapids which bars the ascent of the River St. Lawrence. They are 986 miles distant from the Straits of Belle Isle.

SOULANGES CANAL.

Length of canal	14 statute miles.
Number of locks { lift	4
Number of locks { guard	1
Dimensions of locks	280 feet by 45 feet.
Total rise or lockage	84 feet.
Depth of water on sills	15 "
Breadth of canal at bottom	100 "
Breadth of canal at water surface	164 "
Number of arc lights	219 of 2,000 c. p. each.

The canal extends from Cascade Point to Coteau Landing, overcoming the Cascade Rapids, Cedar Rapids and Coteau Rapids.

From the head of the Lachine to the foot of the Soulanges, the distance is sixteen miles.

CORNWALL CANAL.

Length of canal	11 statute miles.
Number of locks	6
Dimensions of locks	270 feet by 45 feet.
Total rise or lockage	48 feet.
Depth of water on sills	14 "
Breadth of canal at bottom	100 "
Breadth of canal at water surface	164 "

The old lift locks, 200 feet by 45 feet, are also available, with nine feet of water on mitre sills.

From the head of the Soulanges to the foot of the Cornwall canal there is a stretch through Lake St. Francis, of $32\frac{3}{4}$ miles, which is being made navigable for vessels drawing fourteen feet.

The cornwall Canal extends past the Long Sault Rapids from the town of Cornwall to Dickinson's Landing.

WILLIAMSBURG CANALS.

The Farran's Point, Rapide Plat and Galops canals are collectively known as the Williamsburg Canals.

FARRAN'S POINT CANAL.

Length of canal	$1\frac{1}{2}$ mile.
Number of locks	1
New lock	800 feet by 45 feet.
Old lock	200 "
Total rise or lockages	$3\frac{1}{2}$ feet.
Depth of water on sills of new lock	14 "
Depth of water on sills of old lock	9 "
Breadth of canal at bottom	90 "
Breadth of canal at water surface	154 "

From the head of the Cornwall canal to the foot of Farran's Point canal, the distance on the River St. Lawrence is five miles. The latter canal enables vessels ascending the river to avoid Farran's Point Rapid, passing the full tow at one lockage. Descending vessels run the rapids with ease and safety.

RAPIDE PLAT CANAL.

Length of canal	3⅔ miles.
Number of locks	2
Dimensions of locks	270 feet by 45 feet.
Total rise or lockage	11½ feet.
Depth of water on sills	14 "
Breadth of canal at bottom	80 "
Breadth of canal at surface of water	152 "

The old lift lock, 200 feet by 45, is also available, with nine feet of water on mitre sills.

From the head of Farran's Point canal to the foot of Rapide Plat canal, there is a navigable stretch of 10½ miles. This canal was formed to enable vessels ascending the river to pass the rapids at that place Descending vessels run the rapids safely.

GALOPS CANAL.

Length of canal		7¾ miles.
Number of locks		3
Dimensions of locks.	one of which is	2–270 by 45.
	a guard lock.	1–800 by 45.
Total rise of lockage		15½ feet.
Depth of water on sills		14 "
Breadth of canal at bottom		80 "
Breadth of canal at surface of water		144 "

From the head of Rapide Plat canal to Iroquois, at the foot of the Galops canal, the St. Lawrence is navigable 4½ miles. The canal enables vessels to overcome the rapids at Pointe aux Iroquois, Point Cardinal and the Galops.

MURRAY CANAL.

Length between eastern and western pier heads.	5⅙ miles.
Breadth at bottom	80 feet.
Breadth at water surface	120 "
Depth below lowest known lake level	11 "
No locks.	

This canal extends through the Isthmus of Murray, giving connection westward between the head waters of the Bay of Quinté and Lake Ontario, and thus enabling vessels to avoid the open lake navigation.

WELLAND CANAL.

Main line from Port Dalhousie, Lake Ontario, to Port Colborne, Lake Erie.

	Old Line.	Enlarged or New Line.
Length of canal	27½ miles	26¾ miles.
Pairs of guard-gates (formely 3)		2
Number of locks — lift	26	25
Number of locks — guard	1	1
Dimensions	1 lock 200 x 45 1 lock 200 x 45 1 (tidal) 230 x 45 24 locks 150 x 45	270 feet x 45 feet.
Total rise or lockage 326¾ feet	326¾ feet	326¾ feet.
Dept of water on sills	10¼ "	14

WELLAND RIVER BRANCHES.

Length of canal—	
Port Robinson Cut to River Welland	2,622 feet.
From the canal at Welland to the river, via lock at Aqueduct	300 "
Chippewa Cut to River Niagara	1,020 "
Number of locks—one at Aqueduct and one at Port Robinson	2
Dimensions of locks	150 by 26½ feet.
Total lockage from the canal at Welland down to River Welland	10 feet.
Depth of water on sills	9 feet 10 inches.

GRAND RIVER FEEDER.

Length of canal	21 miles,
Number of locks	2
Dimensions of locks	1 of 150 by 26½ feet. 1 of 200 by 45 "
Total rise or lockage	7 to 8 feet.
Depth of water on sills	9 feet.

PORT MAITLAND BRANCH.

Length of canal	1¾ miles.
Number of locks	1
Dimensions of locks	185 feet by 45 feet.
Total rise of lockage	7½ feet.
Depth of water on sills	11 "

The Welland canal has two entrances from Lake Ontario, at Port Dalhousie, one for the old, the other for the new canal.

From Port Dalhousie to Allanburg, 11¾ miles, there are two distinct lines of canal in operation, the old line and the enlarged or new line.

From Allanburg to Port Colborne, a distance of 15 miles, there is only one channel, the old canal having been enlarged.

From the head of the Welland canal there is a deep water navigation through Lake Erie, the Detroit River, Lake St. Clair, the St. Clair River, Lake Huron and River St. Mary to the Sault canal, a distance of about 580 miles. From the Sault the distance through Lake Superior to Port Arthur is 266 miles, and to Duluth 400 miles.

SAULT STE. MARIE CANAL,

Length of canal, between the extreme ends of the entrance piers	5,967 feet.
Number of locks	1
Dimensions of locks	900 ft. by 60 ft.
Depth of water on sills (at lowest known water level)	20 ft. 3 inches.
Total rise or lockage	18 feet.
Breath of canal at bottom	141 ft. 8 inches.
Breadth at surface of water	150 feet.

This canal has been constructed through St. Mary's Island, on the north side of the rapids of the River St. Mary, and, with that river, gives communication on Canadian

territory between Lakes Huron and Superior. The masonry pier of the bridge carrying the Canadian Pacific Railway over the canal, which stood in the channel of the canal, forming an obstruction to navigation, has been removed; the swing now spanning the full width of the channel or prism of the canal.

MONTREAL, OTTAWA AND KINGSTON.

This route extends from the harbour of Montreal to the port of Kingston, passing through the Lachine canal, the navigation section of the lower River Ottawa, and the Ottawa canals, to the city of Ottawa; thence by the River Rideau and the Rideau canal to Kingston, on lake Ontario—a total distance of 245⅝ miles.

After leaving the Lachine canal the works constructed to overcome difficulties of navigation are:

Ottawa River Canals.

The Ste. Anne's Lock.	Grenville Canal.
Carillon Canal.	Rideau Canal.

The total lockage (not including that of the Lachine canal) is 509 feet—(345 rise 164 fall)—and the number of locks is 55.

The following table exhibits the intermediate distances from Montreal harbour:—

Sections of Navigation.	Intermediate Distance.	Total Distance, from Montreal.
	Miles.	Miles.
The Lachine Canal	8½	
From Lachine to Ste. Anne's lock	15	23
Ste. Anne's lock and piers	⅛	23
Ste. Anne's lock to Carillon canal	27	50
The Carillon canal	⅛	51
The Carillon to Grenville Canal	6¼	57
The Grenville canal	5¾	63
From the Grenville canal to entrance of Rideau navigation	56	119
Rideau navigation ending at Kingston	126¼	245

STE. ANNE'S LOCK.

	Old Lock.	New Lock.
Length of canal	⅛ mile.	⅛ mile.
Number of locks	1	1
Dimensions of locks	190 x 45 feet	200 x 45 feet.
Total rise or lockage	3 feet.	3 feet.
Depth of water on sills	6 "	9 "

This work, with guide piers above and below, surmounts the Ste. Anne's rapids between Ile Perrot and the head of the Island of Montreal, at the outlet of that portion of the River Ottawa which forms the Lake of Two Mountains, 23½ miles from Montreal harbour.

THE CARILLON CANAL.

Length of canal	$\frac{3}{4}$ mile.
Number of locks	2
Dimensions of locks	200 x 45 feet.
Total rise or lockage	16 feet.
Depth of water on sills	9 "
Breadth of canal at bottom	100 "
Breadth of canal at water surface	110 "

This canal overcomes the Carillon rapids.

From Ste. Anne's lock to the foot of the Carillon canal there is navigable stretch of 27 miles, through the Lake of Two Mountains and the River Ottawa.

By the construction of the Carillon dam across the River Ottawa the water at that point is raised 9 feet, enabling the river above to be used for navigation.

GRENVILLE CANAL.

Length of canal	$5\frac{3}{4}$ miles.
Number of locks	5
Dimensions of locks	200 x 45 feet.
Total rise or lockage	$43\frac{3}{4}$ feet.
Depth of water on sills	9 "
Breadth of canal at bottom	40 to 50 feet.
Breadth of canal at surface of water	50 to 80 feet.

This canal, by which the Long Sault rapids are avoided, is about 56 miles below the city of Ottawa, up to which point the River Ottawa affords unimpeded navigation.

RIDEAU NAVIGATION.

The Rideau system connects the River Ottawa, at the city of Ottawa, with the eastern end of Lake Ontario, at Kingston.

Length of navigation waters	$126\frac{1}{4}$ miles.
Number of locks going from Ottawa to Kingston	35 ascending. 14 descending.
Total lockage $446\frac{1}{2}$ feet	$282\frac{1}{4}$ rise and 164 fall at high water.
Dimensions of locks	134 x 33 feet.
Depth of water on sills	5 feet.
Navigation depth through the several reaches	$4\frac{1}{2}$ feet.
Breadth of canal reaches at bottom	60 feet in earth. 54 feet in rock.
Breadth of canal at surface of water	80 feet in earth.

PERTH BRANCH.

Length of canal	6 miles.
Number of locks	2
Dimensions of locks	134 feet x 32 feet.
Total rise or lockage	26 "
Depth of water on sills	5 " 6 inches.
Length of dam	200 "
Breadth of canal at bottom	40 "
Breadth of canal at surface of water	40 " in rock. 60 " in clay.

The Perth branch of the Rideau canal affords communication between Beveridge's bay, on Lake Rideau, and the town of Perth.

The summit level of the Rideau system is at upper Lake Rideau, but several of the descending reaches are also supplied by waters which have been made tributary to them. The following description gives the sources of supply :—

From the summit, the route towards Ottawa follows the Rideau river, and that towards Kingston follows the River Cataraqui. The supply of water for the canal is derived from the reserves given in detail below.

These may be divided into three systems, viz :—

1. The summit level, supplied by the Wolfe lake system.

2. The eastern descending level to Ottawa, supplied by the River Tay system, discharging into Lake Rideau.

3. The south-west descending level to Kingston, supplied by the Mud lake system formerly known as the Devil lake system, discharging into Lake Openicon.

Lake Openicon receives the waters of Buck lake and Rock lake.

All these waters on the descending level, supplemented by those of Lake Loughboro', flow into Cranberry lake, which, discharging through Round Tail outlet, forms the River Cataraqui. The river, rendered navigable by dams at various points, affords a line of navigation to Kingston.

RICHELIEU AND LAKE CHAMPLAIN.

This system, commencing at Sorel, at the confluence of the Rivers St. Lawrence and Richelieu, 46 miles below Montreal, extends along the River Richelieu, through the St. Ours lock to the basin of Chambly; thence, by the Chambly canal, to St. Johns, and up the River Richelieu to Lake Champlain. The distance from Sorel to the boundary line is 81 miles.

At Whitehall, the southern end of Lake Champlain is entered, and connection is obtained with the River Hudson, by which the city of New York is directly reached. From the boundary line to New York the distance is 330 miles.

The following table shows the distances betweeu Sorel and New York :—

Section of Navigation.	Intermediate Distance.	Total Distances.
	Miles.	Miles.
Sorel to St. Ours lock	14	14
St. Ours lock to Chambly canal	32	46
Chambly canal	12	58
Chambly canal to boundary line	23	81
Boundary line to Champlain canal	111	192
Champlain canal to junction with Erie canal	66	258
Erie canal, from junction to Albany	7	265
Albany to New York	146	411

ST. OURS LOCK DAM.

Length	$\frac{1}{8}$ mile.
Number of locks	1 "
Dimensions of lock	200 feet by 45 feet.
Total rise of lockage	5 "
Depth of water on sills	7 feet at low water.
Length of dam in eastern channel	300 "
Length of dam in western channel	690 "

At St. Ours, 14 miles from Sorel, the River Richelieu is divided by a small island into two channels. The St. Ours lock is in the eastern channel.

There is a navigable depth in the Richelieu of 7 feet between St. Ours lock and Chambly basin, a distance of 32 miles.

CHAMBLY CANAL.

Length of canal	12 miles.	
Number of locks	9	
Dimensions of locks :—		
Guard lock, No. 1 at St. Johns	122 feet.	From $22\frac{1}{2}$ to 24 feet wide.
Lift " 2	124 "	
" " 3, 4, 5, 6	118 "	
" " 7, 8, 9 combined	125 "	
Total rise or lockage	74 "	
Depth of water on sills	7 "	
Breadth of canal at bottom	36 "	
Breadth of canal at surface of water	60 "	

This canal succeeds the 32 miles of navigable water between St. Ours lock and Chambly basin. The canal overcomes the rapids between Chambly and St. Johns.

TRENT CANAL.

The term 'Trent canal' is applied to a series of water stretches, which do not, however, form a connected system of navigation, and which, in their present condition, are efficient only for local use. By various works this local use has been extended, and by others, now in progress and contemplation, this will become a through route between Lake Ontario and Lake Huron.

The series is composed of a chain of lakes and rivers, extending from Trenton, at the mouth of the River Trent, on the Bay of Quinté, Lake Ontario, to Lake Huron.

Many years ago the utilizing of these waters for the purpose of through water communication between Lake Huron and Lake Ontario was projected.

The course, as originally contemplated and modified, is as follows :—

Through the River Trent, Rice lake, the River Otonabee and Lakes Clear, Stony, Lovesick, Deer, Buckhorn, Chemong, Pigeon, Sturgeon and Cameron to Lake Balsam, the summit water, about 165 miles from Trenton ; from Lake Balsam by a canal and the River Talbot to Lake Simcoe ; thence by the River Severn to Georgian bay, Lake Huron ; the total distance being about 200 miles, of which only about 15 or 20 miles will be actual canal.

The full execution of the scheme, commenced by the Imperial government in 1837, was deferred. By certain works, however, below specified, sections of these waters have been made practicable for navigation and the whole scheme is now being carried out. A branch of the main route, extending from Sturgeon lake south, affords communication with the town of Lindsay, and, through Lake Scugog to Port Perry, a distance of 190 miles from Trenton.

The following table gives the distance of navigable and unnavigable reaches :—

	Navigable Miles.	Unnavigable Miles.
From Trenton, Bay of Quinté to Nine Mile rapids.	—	9
Nine Mile rapids to Percy landing	19½	—
Percy landing to Heeley's Falls dam	—	14½
Heeley's Falls dam to Peterborough	51¾	—
Peterborough to Lakefield	—	9
Lakefield to a point across Balsam lake	61	—
	132¼	32¾
Total distance, Bay of Quinté to a point across Balsam lake		165
From Sturgeon Point on Sturgeon lake, 48¾ miles from Lakefield, the branch through the town of Lindsay to Port Perry at the head of Lake Scugog		27

The works by which the Trent navigation has been improved comprise canals, with locks and bridges, at Young Point, Burleigh Rapids, Lovesick, Buckhorn Rapids, Bobcaygeon, Fenelon Falls and Rosedale ; also dams at Lakefield, Young's Point, Burleigh Falls, Lovesick, Buckhorn, Bobcaygeon and Fenelon Falls. By these works there is afforded communication between Lakefield, 9½ miles from Peterborough, and Balsam lake, the headwaters of the system ; opening up a total of about 160 miles of direct and lateral navigation.

At Lakefield, 9½ miles from Peterborough, the dam at the head of the Nine Mile rapids of the River Otonabee, maintains navigation on Lake Katchewannoe up to Young's Point.

At Young's Point, 5 miles from Lakefield, the dam between Lake Katchewannoe and Clear lake controls the water level through Clear and Stony lakes up to the foot of the Burleigh canal. The lock here, it should be observed, is controlled by the Provincial government.

At Burleigh rapids, 10 miles from Young's Point, a canal, about 2¼ miles in length, passes the Burleigh and Lovesick rapids, and gives communication between Stony lake and Deer bay.

At Buckhorn rapids, 7 miles from Burleigh rapids, there is a canal about one-fourth of a mile long.

At Bobcaygeon, 15¾ miles from Buckhorn rapids, a dam, 553 feet long, controls the water level up to Fenelon Falls.

At Fenelon Falls, 15 miles from Bobcaygeon, a canal about one-third of a mile in length connects Sturgeon lake with Cameron lake.

The following is a list of the locks with their dimensions :—

1	Lock at Rosedale, (maintained by the Ontario government)	100′ x 30′ x 4′ 6′ to 6′ 6″ depth water on mitre sill.
2	Locks at Fenelon	134′ x 33′ x 5′ 0″ to 7′ 6″ depth water on mitre sill.
1	" Lindsay	134′ x 33′ x 5′ 0″ to 7′ 6″ " "
1	" Bobcaygeon	134′ x 33′ x 5′ 8″ to 7′ 0″ " "
1	" Buckhorn	134′ x 33′ x 5′ 0″ to 9′ 0″ " "
1	" Lovesick	134′ x 33′ x 5′ 0″ to 9′ 4″ " "
2	" Burleigh	134′ x 33′ x 6′ 0″ to 8′ 0″ " "
1	" Young's Point (a Provincial government work)	134′ x 33′ x 5′ 0″ to 14′ 0″ depth water on mitre sill.
1	" Peterborough	134′ x 33′ x 5′ 0″ to 10′ 0″ depth water on mitre sill.
1	" Hastings	134′ x 33′ x 7′ 0″ to 10′ 6″ " "
"	" Chisholms	134′ x′ 33′ x 5′ 0″ to 8′ 6″ " "
13		

ST. PETER'S CANAL, CAPE BRETON.

Length of canal	About 2,400 feet.
Breadth at water line	50 feet.
Lock	One tidal lock, 4 pairs of gates.
Dimensions	200 feet by 48 feet.
Depth of water on sills	18 " at lowest water.
Depth through canal	19 "
Extreme rise and fall of tide in St. Peter's Bay	4 "

This canal connects St. Peter's bay on the northern side of Cape Breton, Nova Scotia, with the Bras d'Or lakes. It crosses an isthmus half a mile in width, and gives access from the Atlantic.

BEAUHARNOIS CANAL.

Length of canal	12 statute miles.
Number of locks	9.
Dimensions of locks	200 feet by 45 feet.
Total rise or lockage	82½ "
Depth of water on sills	9 "
Breadth of canal at bottom	80 "
Breadth of canal at water surface	120 "

As the new Soulanges canal is now opened for navigation, it is to be presumed that the Beauharnois canal will be abandoned for navigation purposes.

SESSIONAL PAPER No. 20a

ST. LAWRENCE NAVIGATION—TABLE OF DISTANCES.

FROM STRAITS OF BELLE-ILE TO PORT ARTHUR, AT HEAD OF LAKE SUPERIOR, BY WATER.

From	To	Sections of Navigation.	Statute Miles. Intermediate.	Statute Miles. Total to Straits of Belle-Ile.
Straits of Belle-Ile	Cape Whittle	Gulf of St. Lawrence	240	240
Cape Whittle	West Point, Anticosti	"	201	441
West Point, Anticosti	Father Point	River St. Lawrence	202	643
Father Point	Rimouski	"	6	649
Rimouski	Bic	"	12	661
Bic	Isle Verte	"	39	700
Isle Verte (opp. Saguenay)	Quebec	"	126	826
Quebec	Three Rivers	" to Tide-water	74	900
Three Rivers	Montreal	"	86	986
Montreal	Lachine	Lachine Canal	8½	994½
Lachine	Beauharnois	Lake St. Louis	15¼	1,009¾
Beauharnois	Ste. Cécile	Beauharnois Canal	11¼	1,021
Ste. Cécile	Cornwall	Lake St. Louis	32¾	1,053¾
Cornwall	Dickinson's Landing	Cornwall Canal	11½	1,065¼
Dickinson's Landing	Farran's Point	River St. Lawrence	5	1,070¼
Farran's Point	Upper end of Croyle's Island	Farran's Point	¾	1,071
Upper end Croyle's Island	Williamsburg or Morrisburg	River St. Lawrence	10½	1,081¼
Williamsburg	Rapide Plat	Rapide Plat Canal	4	1,085¼
Rapide Plat	Point Iroquois Village	River St. Lawrence	4½	1,090
Point Iroquois Village	Upper end Presqu'Ile	Point Iroquois Canal	3	1,093
Presqu'Ile	Point Cardinal, Edwardsburg	Junction Canal	2⅝	1,095⅝
Point Cardinal	Head of Galops Rapids	Galops Canal	2	1,097⅝
Galops Rapids	Prescott	River St. Lawrence	7⅜	1,105
Prescott	Kingston	"	59	1,164
Kingston	Port Dalhousie	Lake Ontario	170	1,334
Port Dalhousie	Port Colborne	Welland Canal	26¾	1,360¾
Port Colborne	Amherstburg	Lake Erie	232	1,592¾
Amherstburg	Windsor	River Detroit	18	1,610¾
Windsor	Foot of St. Mary's Island	Lake St. Clair	25	1,635¾
Foot of St. Mary's Island	Sarnia	River St. Clair	33	1,668¾
Sarnia	Foot of St. Joseph's Island	Lake Huron	270	1,938¾
Foot of St. Joseph's Island	Foot of Sault Ste. Marie	River St. Mary	47	1,985¾
Sault Ste. Marie	Head of Sault Ste. Marie	Sault Ste. Marie Canal	1	1,986¾
Head of Sault Ste. Marie	Pointe aux Pins	River St. Mary	7	1,993¾
Pointe aux Pins	Port Arthur	Lake Superior	266	2,259¾
Port Arthur to Lake Shebandowan			45	
Lake Shebandowan to North-west Angle			312	
North-west Angle to Winnipeg			95	
Pointe aux Pins to Duluth			390	

Of the 2,259¾ miles from the Straits of Belle-Ile to the head of Lake Superior, 71 miles are artificial navigation, and 2,188¾ open navigation.

Straits of Belle-Ile to Liverpool, 1,942 geographical or 2,234 statute miles.

The total fall from Lake Superior to Tide-water is about 600 feet.

The steamboat voyage from Collingwood to Port Arthur is 532 miles.

TABLE of distances of Stations between the cities of Ottawa and Kingston,

No. of Station.	Name of Station.	Distances from Ottawa.	Locks.		Dams.			Length of Artificial Canal at each Station in miles.
			No.	Lift at Low Water.	No.	Length.	Height.	
		Miles.		Rise. Ft. In.		Feet.	Feet.	
1	Ottawa	0	8	82 0	3	230 1,320 1,616	13 33 14	
2	Hartwell's	4¼	2	22 0	...	100	28	4·00
3	Hogsback	5½	2	13 6	1	320	60	
4	Black Rapids	9½	1	10 0	1	300	12	0·13
5	Long Island	14⅝	3	27 0	3	850	68	0·13
6	Burritt's	40⅝	1	10 6	1	240	14	1·50
7	Nicholson	43¾	2	15 2	1	500	9	0·50
8	Clowes	44½	1	10 0	1	481	16	0·05
9	Merrickville	46¾	3	25 0	1	150	6	0·33
10	Maitland	55	1	4 9	1	270	8	0·13
11	Edmunds	59½	1	10 10	1	343	8	0·06
12	Old Slys	60½	2	15 6	1	250	20	0·25
13	Smith's Falls	61½	4	33 9	2	600	24	0·13
14	First Rapids or Poonamalie	64	1	7 9	1	260	5	1·25
15	Narrows	83¼	1	4 0	1	600	9	0·06
	Total rise at low water	...	...	292 3				
				Fall.				
16	Isthmus	87½	1	4 0	...	.....	.....	1·25
17	Chaffey's	92	1	12 6	....	.....	.....	0·13
18	Davis	94½	1	9 0	1	300	15	0·06
19	Jones' Falls	97¼	4	60 0	1	300	60	0·25
20	Brewer's Upper Mills	108¼	2	19 0	1	200	20	1·75
21	" Lower Mills	110	1	14 2	1	200	12	4·25
22	Kingston Mills	120¼	4	46 8	1	6,042	14	0·25
23	Kingston	126¼	....	.....	....	.....	.....	.....
	Total fall at low water	.....	....	165 4	....	.....	.....	.....
	Total	.....	47	.....	24	15,472	.....	16·46

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RAILWAY STATISTICS

OF THE

DOMINION OF CANADA

FOR THE

YEAR ENDED JUNE 30, 1906

(From sworn Returns furnished by the several Railway Companies)

M. J. BUTLER

Deputy Minister and Chief Engineer of the Department of Railways and Canals

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1907

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OFFICE OF THE COMPTROLLER OF RAILWAY STATISTICS.

OTTAWA, November 13, 1906.

M. J. BUTLER, Esq.,
Deputy Minister of Railways and Canals.

SIR,—By way of preface to my first report, it may not be considered amiss to allude to the steps which have been taken to reorganize the Statistical Branch of this department. The methods which had been followed up to July 1 last, when I was asked by you to take charge, were obviously defective. They had been adopted upwards of thirty years ago, when railway development in Canada was on a relatively small scale, and with slight modifications were continued down to this year. They were in keeping with the primitive conditions which prevailed in 1875; but had by a natural process become practically obsolete for present purposes.

In this situation I was asked by you to make such changes as would place our railway statistics on an up-to-date basis, so that accurate and far-reaching comparisons might be made between the results of operation in Canada and in other countries. It was decided that the schedules of the Interstate Commerce Commission at Washington would best accomplish that purpose. They had been worked out with great care during a period of years, and were regarded as the most complete and comprehensive available. By applying them to Canadian railways, it was believed that valuable and helpful comparisons might be made between the business of transportation in the Dominion and that being carried on, under similar conditions, in the United States.

It is gratifying to be able to report that not a single railway made default this year in the submission of statistical data. In preceding years there were a number of delinquents.

The new schedules will be made the basis of our statistics for the current fiscal year, and will be sent out in the course of a few weeks. It is possible the usual difficulties will be encountered in fitting a new system to the railways which have grown accustomed to the old forms; but the principal roads will be quite prepared to meet the demands upon them. Their methods of book-keeping will enable them to satisfactorily answer the somewhat elaborate table of questions, and in this way it is hoped the data for 1907 will be reasonably full and accurate. In the case of the smaller lines, it may be that a year or two will elapse before they will be in a position to readily supply the information required of them. Every effort, however, will be made on the part of this office to assist them in the matter.

It was deemed important to make a digest of the statistical information which had been issued from year to year since 1875 by the Department of Railways and Canals, and to this work my efforts have been directed for several months past. The tables which have been compiled are here given for the first time, and represent a history in figures of the growth of railway business in Canada. Hereafter this information will be made a part of each annual report, and will be a novel feature in that they will enable comparisons to be made over the whole period covered by our railway statistics.

MILEAGE.

As a starting basis, it is interesting to observe the development of railway mileage in Canada:—

Year.	Miles in Operation.	Year.	Miles in Operation.
1835	0	1871	2,695
1836	16	1872	2,899
1837	16	1873	3,832
1838	16	1874	4,331
1839	16	1875	4,804
1840	16	1876	5,218
1841	16	1877	5,782
1842	16	1878	6,226
1843	16	1879	6,858
1844	16	1880	7,194
1845	16	1881	7,331
1846	16	1882	8,697
1847	54	1883	9,577
1848	54	1884	10,273
1849	54	1885	10,773
1850	66	1886	11,793
1851	159	1887	12,184
1852	205	1888	12,585
1853	506	1889	12,585
1854	764	1890	13,151
1855	877	1891	13,838
1856	1,414	1892	14,564
1857	1,444	1893	15,005
1858	1,863	1894	15,627
1859	1,994	1895	15,977
1860	2,065	1896	16,270
1861	2,146	1897	16,550
1862	2,189	1898	16,870
1863	2,189	1899	17,250
1864	2,189	1900	17,657
1865	2,240	1901	18,140
1866	2,278	1902	18,714
1867	2,278	1903	18,988
1868	2,270	1904	19,431
1869	2,524	1905	20,487
1870	2,617	1906	21,353

In addition to the foregoing there were on June 30 last 743 miles of double track in Canada.

In this connection, it is worthy of note that but seventy-four miles of iron rails now remain as a relic of earlier days. By steady advances the work of substituting steel for iron has gone on during recent years, and in this regard Canadian lines have kept pace with the progress which has taken place in other countries.

As indicative of the expansion in transportation facilities, it may be pointed out that 3,071.70 miles of railway were under construction on June 30 last, as compared with 1,066.98 on the same date last year.

EQUIPMENT.

In keeping with the larger mileage, increases and improvements have been made in equipment. The growth may be gathered from the following table:—

Year.	Locomotives.	1st Class Cars.	2nd Class Cars.	Baggage, Mail and Express Cars.	Cattle and Box Cars.	Platform Cars.	Dumping and Coal Cars.
1875	980	488	277	235	12,843	6,404	1,050
1876	1,000	493	280	264	13,647	7,088	1,050
1877	995	497	294	241	13,712	6,917	1,050
1878	1,050	530	308	275	14,967	6,703	1,317
1879	1,106	548	327	274	14,983	6,618	1,731
1880	1,157	569	310	291	15,614	6,689	1,776
1881	1,211	640	353	344	17,916	8,209	1,716
1882	1,331	665	364	388	20,302	9,621	2,050
1883	1,383	671	397	370	21,399	12,731	1,625
1884	1,481	694	458	406	21,477	13,989	1,941
1885	1,524	704	501	403	22,166	13,761	2,391
1886	1,567	735	497	419	23,645	13,128	2,533
1887	1,633	764	514	463	24,770	12,865	2,957
1888	1,657	759	568	506	27,870	12,992	3,147
1889	1,761	795	581	517	31,025	13,925	3,235
1890	1,771	806	604	525	32,383	13,737	3,236
1891	1,850	849	624	560	34,365	14,614	3,559
1892	1,961	909	634	591	35,668	15,400	3,584
1893	1,954	977	664	610	35,741	15,719	3,455
1894	2,002	992	670	636	35,852	14,904	4,699
1895	2,023	1,076	702	664	36,360	15,758	4,845
1896	2,044	1,042	648	650	36,791	15,592	4,812
1897	2,096	1,085	688	674	37,471	15,352	4,931
1898	2,112	1,214	628	668	38,820	16,306	5,181
1899	2,217	1,239	640	668	41,151	15,811	5,582
1900	2,282	1,287	641	662	42,538	15,626	5,872
1901	2,443	1,159	649	815	45,904	16,348	6,775
1902	2,444	1,166	573	681	48,790	15,834	7,736
1903	2,587	1,148	590	818	53,107	18,285	7,639
1904	2,768	1,231	595	860	54,877	18,644	8,476
1905	2,906	1,285	683	796	57,229	18,669	8,787
1906	2,931	1,289	716	842	61,929	18,525	8,295

In this list is included hired locomotives and cars as well as those owned by the railways. It is regrettable that the information gathered in the past does not permit a comparison to be made between the traction power of present day locomotives and those formerly in use, nor the relative capacity of cars. This would be most instructive. Some idea, however, of the betterment in motive power may be had from the fact that in 1875 the volume of traffic was 5,786 tons of freight and 5,296 passengers per locomotive, as compared with 19,773 tons and 9,549 passengers in 1906. This is not, of course, an accurate test; but it is permissible under the circumstances. The same comparison applies to cars, the capacity of which has practically quadrupled within thirty years. A loaded freight train of 250 tons was probably the maximum in 1875; whereas loads of 1,500 tons are now frequently hauled over all our principal railways.

In addition to the cars enumerated in the above table, there are in use on Canadian railways 235 sleeping cars, 96 parlor cars, 80 dining cars and 61 official cars. In connection with freight service there are 1,655 refrigerator cars, 1,422 conductors' vans, 1,325 tool cars, 341 snow ploughs, 205 flangers and 2,868 cars of other descriptions. The grand total is 99,874 cars of all classes. Under the Railway Act of 1903 all cars were required to be equipped with air brakes and automatic couplers by January 1 last, and the returns show

there has been a fair compliance with the law. Of the cars of all descriptions in use on June 30 last, 91,015 were fitted with automatic couplers, and 85,616 with air brakes.

TRAFFIC.

Coming to the traffic of Canadian railways, it will be seen that immense growth has taken place within the thirty-two years covered by the statistics at hand. Looking first at the volume of business, the result is as follows:—

Year.	Passengers Carried.	Tons of Freight 2000 lbs.	Year.	Passengers Carried.	Tons of Freight 2000 lbs.
1875	5,190,416	5,670,837	1891	13,222,568	21,753,021
1876	5,544,814	6,331,757	1892	13,533,414	22,189,923
1877	6,073,233	6,859,796	1893	13,618,027	22,003,599
1878	6,443,924	7,883,472	1894	14,462,498	20,721,116
1879	6,523,816	8,348,810	1895	13,987,580	21,524,421
1880	6,462,948	9,938,858	1896	14,810,407	24,266,825
1881	6,943,671	12,065,323	1897	16,171,338	25,300,331
1882	9,352,335	13,575,787	1898	18,444,049	28,785,903
1883	9,579,984	13,266,255	1899	19,133,365	31,211,753
1884	9,982,358	13,712,269	1900	21,500,175	35,946,183
1885	9,672,599	14,659,271	1901	18,385,722	36,999,371
1886	9,861.024	15,670,460	1902	20,679,974	42,376,527
1887	10,698,638	16,356,335	1903	22,148,742	47,373,417
1888	11,416,791	17,172,759	1904	23.640,765	48,097,519
1889	12,151,105	17,928,626	1905	25,288,723	50,893,957
1890	12,821,262	20,787,469	1906	27,989,782	57,966,713

It will be observed that very considerable gains have been made in traffic, and reference will be made a little further along to what this has been by percentages.

EARNINGS.

In the meantime, it is of equal importance to glance at the earnings of all the railways from the above business. A table has been prepared to show the results, which are as follows:—

Year.	Passengers.	Per cent.	Freight.	Per cent.	Mail and Express.	Per cent.	Other Sources.	Per cent.	Total.
	$		$		$		$		$
1875	6,410,934	32.92	12,073,570	62.00	693,250	3.56	292,784	1.52	19,470,539
1876	6,254,866	32.25	12,211,158	63.08	703,994	3.63	188,064	0.96	19,358,084
1877	6,458,493	34.46	11,321,264	60.40	744,741	3.97	217,554	1.16	18,742,053
1878	6,386,325	31.12	13,129,191	63.98	795,797	3.87	208,763	1.01	20,520,078
1879	6,459,598	32.41	12,509,093	62.77	789,926	3.96	166,448	0.83	19,925,066
1880	7,076,339	30.03	15,506,935	65.81	851,288	3.18	102,075	0.43	23,561,447
1881	8,223,254	29.34	18,666,982	66.69	946,159	3.37	145,332	0.51	27,987,508
1882	10,018,477	34.51	17,729,945	61.07	1,037,460	3.57	235,857	0.81	29,027,789
1883	10,538,119	31.69	21,320,208	64.13	1,108,208	3.33	261,423	0.78	33,244,586
1884	11,204,036	33.70	20,763,243	62.12	1,155,044	3.45	299,880	0.89	33,421,705
1885	10,559,796	32.76	19,962,058	61.94	1,283,307	3.98	422,306	1.31	32,227,469
1886	10,261,691	30.73	21,183,967	63.44	1,432,360	4.02	511,362	1.53	33,389,381
1887	11,867,597	30.55	24,581,047	63.28	1,575,157	4.05	771,992	1.98	38,841,609
1888	12,744,636	30.22	26,410,084	62.64	1,627,731	3.85	1,376,699	3.26	42,159,152
1889	13,242,708	31.41	26,671,049	63.27	1,681,162	3.98	554,694	1.29	42,149,615
1890	13,731,768	29.31	29,921,788	63.87	1,757,977	3.96	1,423,592	3.25	46,843,826
1891	14,286,408	29.64	30,548,645	63.38	1,904,961	3.95	1,452,083	3.01	48,192,099
1892	14,788,465	28.61	33,230,121	64.28	1,995,059	3.85	1,672,121	3.23	51,685,768
1893	15,087,299	29.12	32,935,028	63.28	2,151,769	4.13	1,868,298	3.59	52,042,396
1894	15,452,420	31.18	29,982,482	60.50	2,182,942	4.40	1,934,682	3.94	49,552,528
1895	13,311,440	28.42	29,545,490	63.15	2,198,460	4.43	1,730,096	3.68	46,785,486
1896	13,747,773	27.19	32,368,082	64.03	2,396,082	4.07	2,033,069	4.02	50,545,569
1897	13,929,346	26.48	33,522,102	62.88	2,624,573	5.01	2,278,106	4.35	52,353,276
1898	15,622,311	26.16	38,508,175	64.48	2,732,004	4.59	2,852,613	4.77	59,715,105
1899	15,929,583	25.59	40,101,036	64.42	2,842,681	4.56	3,370,483	5.41	62,243,784
1900	18,581,452	26.26	45,643,699	64.52	3,012,486	4.25	3,502,632	4.95	70,740,270
1901	19,396,302	26.60	46,665,103	64.01	3,105,457	4.25	3,731,885	5.12	72,898,749
1902	22,600,090	27.01	53,986,672	64.52	3,273,302	3.91	3,806,437	4.54	83,666,503
1903	24,862,109	25.88	63,089,448	65.67	3,396,145	3.53	4,716,823	4.91	96,064,526
1904	26,901,831	26.84	64,673,919	64.53	4,031,662	4.02	4,612,022	4.61	100,219,436
1905	28,959,649	27.20	68,203,320	64.13	3,961,769	3.07	5,342,459	5.01	106,467,198
1906	33,392,188	26.64	81,433,115	64.97	4,510,649	3.59	5,986,912	4.77	125,322,865

An analysis of the foregoing tables yields results which are both instructive and gratifying. Dividing up the whole time into ten year periods, or nearly so, the showing is as follows:—

Years.	Tons of freight carried.	Increase.	Earnings from freight.	Increase.
	Tons.	p. c.	$	p. c.
1875	5,670,837	.....	12,073,570	.....
1886	15,670,460	176.1	21,183,967	75.4
1896	24,266,825	54.9	33,368,082	57.5
1906	57,966,713	138.8	81,433,115	144.0

With respect to passenger business, the calculation works out as follows:—

Years.	Number of Passengers.	Increase.	Earnings from Passengers.	Increase.
		p. c.	$	p. c.
1875	5,190,416	.....	6,410,934	.....
1886	9,861,024	89.9	10,261,691	60.0
1896	14,810,407	50.2	13,747,773	32.9
1906	27,989,782	88.9	33,392,188	142.9

The increase in the volume of freight traffic for the whole period was 922.1 per cent, while the earnings therefrom increased by 574.4 per cent.

The growth in the volume of passenger traffic during the same time was 439.2 per cent, and of earnings from that source 420.8 per cent.

Several deductions follow as a logical sequence: The amount of freight traffic has grown much more rapidly than have the earnings; while both the volume of passenger business and the earnings therefrom have kept closely together. Without definite particulars in relation to freight traffic, it would probably be misleading to conclude that the difference between the volume and the earnings has been wholly due to a reduction in the charges. An examination of tariff rates indicates this to have operated in part as a cause; but to what extent the development of through business, changes in classification and the influence of the long haul, have also been factors in the problem, cannot be stated. With the new statistical schedules in force, to which reference has been made, it is expected that more detailed information will be available with regard to both the freight and passenger business of our railways.

A gratifying feature of the above figures is the advance shown to have been made during the past decade, particularly within very recent years. This is undoubtedly the result of general prosperity throughout the Dominion, and, having regard to the influx of immigrants and the industrial activity prevailing, may be taken as an augury of further expansion.

A further analysis of freight traffic, on the basis of train mileage and tonnage, yields comparative results which are helpful. Following is the table:—

Year.	Freight Earnings.	Train Mileage.	Number of Tons carried.	Earnings per Train mile.	Average Earnings per Ton carried.
	$	Miles.	Tons.	p. c.	p. c.
1875	12,073,570	12,473,825	5,670,837	.968	2.129
1876	12,211,158	12,266,167	6,331,757	.995	1.928
1877	11,321,264	13,178,833	6,859,796	.859	1.650
1878	13,129,191	13,444,120	7,883,472	.977	1.665
1879	12,509,093	13,579,086	8,348,810	.921	1.498
1880	15,506,935	14,932,672	9,938,858	1.038	1.560
1881	18,666,982	17,263,121	12,065,323	1.081	1.547
1882	17,729,945	18,013,406	13,575,787	.984	1.305
1883	21,320,208	27,074,761	13,266,255	.787	1.607
1884	20,763,243	19,965,225	13,712,269	1.039	1.514
1885	19,962,058	21,112,234	14,659,271	.946	1.371
1886	21,183,967	21,096,684	15,670,460	1.004	1.351
1887	24,581,047	22,537,719	16,356,335	1.091	1.502
1888	26,410,084	25,415,152	17,172,759	1.039	1.537
1889	26,671,049	25,918,897	17,928,626	1.029	1.487
1890	29,921,788	27,486,459	20,787,469	1.089	1.439
1891	30,548,645	28,411,531	21,753,021	1.075	1.404
1892	33,230,121	29,211,375	22,189,923	1.138	1.502
1893	32,935,028	28,525,975	22,003,599	1.155	1.496
1894	29,982,482	27,227,169	20,721,116	1.101	1.446
1895	29,545,490	25,329,614	21,524,421	1.166	1.372
1896	32,368,082	28,653,957	24,266,825	1.130	1.333
1897	33,522,102	28,542,877	25,300,331	1.174	1.324
1898	38,508,175	31,382,790	28,785,903	1.227	1.340
1899	40,101,036	32,121,829	31,211,753	1.248	1.284
1900	45,643,699	34,255,773	35,946,183	1.332	1.269
1901	46,665,103	34,233,922	36,999,371	1.363	1.261
1902	53,986,672	34,625,820	42,376,527	1.559	1.273
1903	63,089,448	38,287,215	47,373,417	1.648	1.331
1904	64,673,919	37,809,126	48,097,519	1.711	1.344
1905	68,203,320	40,506,096	50,893,957	1.684	1.340
1906	81,433,115	44,651,834	57,966,713	1.824	1.405

It will be seen that the tendency of the earnings per ton has been downward, while the earnings per train mile have moved steadily upward. The latter is a healthy indication. It is the object of all enterprising railways to increase the earnings per train mile, and larger locomotives, more capacious cars, reduction of grades and similar improvements, are all designed to bring about this result. Other things being equal, this is the best known test of economical management. Next year our statistics should afford a still more elucidating fact—the earnings per ton per train mile. That is the basic item in considering the economic aspect of the transportation question.

In further elaboration of railway earnings, a table is appended showing the mileage of passenger trains, the number of passengers carried, the receipts therefrom, and the earnings per train mile:—

Year.	Passengers Carried.	Earnings from Passenger Traffic.	Passenger Train Mileage.	Earnings per Train Mile.
		$		
1875	5,190,416	6,410,934	5,206,353	1.231
1876	5,544,814	6,254,866	5,837,461	1.071
1877	6,073,233	6,458,493	6,271,980	1.030
1878	6,443,924	6,386,325	6,225,327	1.026
1879	6,523,816	6,459,598	6,987,919	.924
1880	6,462,948	7,076,339	7,312,168	.968
1881	6,943,671	8,223,254	8,298,957	.991
1882	9,351,335	10,018,477	15,074,891	.665
1883	9,579,984	10,538,119	9,651,427	1.992
1884	9,982,358	11,204,036	9,315,694	1.203
1885	9,672,599	10,559,796	9,511,455	1.110
1886	9,861,024	10,261,691	9,214,131	1.114
1887	10,698,638	11,867,597	10,838,993	1.095
1888	11,416,791	12,741,636	11,859,684	1.075
1889	12,151,105	13,242,708	12,900,483	1.027
1890	12,821,262	13,731,768	14,362,870	.956
1891	13,222,568	14,286,408	14,987,647	.953
1892	13,533,414	14,788,465	15,237,093	.971
1893	13,618,027	15,087,299	15,859,978	.951
1894	14,462,498	15,452,420	16,542,860	.934
1895	13,987,580	13,311,410	15,332,276	.868
1896	14,810,807	13,747,773	15,846,645	.868
1897	16,171,338	13,929,346	17,237,974	.808
1898	18,444,049	15,622,311	19,305,693	.809
1899	19,133,365	15,929,583	20,093,378	.793
1900	21,500,175	18,581,452	20,922,098	.888
1901	18,385,722	19,396,302	19,115,472	1.015
1902	20,679,974	22,600,090	21,104,036	1.071
1903	22,148,742	24,862,109	22,095,705	1.121
1904	23,640,765	26,901,831	23,502,876	1.145
1905	25,288,723	28,959,649	25,428,018	1.139
1906	27,989,782	33,392,188	28,071,648	1.189

Of course, the earnings per mile are indefinite. If the data were sufficiently elaborate to show the number of passengers carried one mile—which would be obtained by multiplying the number of passengers by the actual mileage of the tickets sold—a factor would be had which would throw direct light on the passenger traffic of each railway. In the absence of that information—which will be gathered in future—it is still of some service to note that the earnings per train mile have increased during the past ten years. It would appear, however, that our Canadian railways are still running passenger trains at a low earning result per mile, which condition will only be improved as the density of travel increases. In other words, and putting the matter in elementary form, it is clear that a train running one hundred miles, and carrying two hundred passengers, will earn just twice as much as a train covering the same distance and carrying but one hundred passengers.

TRAIN MILEAGE.

Collateral to the foregoing facts is the general record of train and locomotive mileage, which is as follows:—

Year.	Passenger Trains.	Freight Trains.	Mixed Trains.	Total Train Mileage.	Engine Mileage.
1875	5,206,353	10,910,181	1,563,644	17,680,178	19,633,026
1876	5,837,461	9,616,148	2,650,019	18,103,628	21,001,052
1877	6,271,980	11,403,517	1,775,316	19,450,813	22,231,840
1878	6,225,327	9,981,786	3,462,334	19,669,447	24,091,600
1879	6,987,919	6,510,636	7,068,450	20,731,689	24,735,862
1880	7,312,168	10,775,380	4,157,292	22,427,449	26,575,969
1881	8,298,957	15,163,634	2,099,487	27,301,306	34,265,003
1882	15,074,891	15,638,013	2,375,393	27,846,411	33,374,847
1883	9,651,427	16,123,337	10,951,424	37,416,092	47,688,528
1884	9,315,694	15,710,630	4,254,595	29,758,676	37,390,874
1885	9,511,455	16,382,553	4,729,681	30,623,689	38,749,234
1886	9,214,131	15,914,127	5,182,557	30,481,086	37,359,499
1887	10,838,993	17,997,819	4,539,900	33,638,748	43,276,468
1888	11,859,684	20,651,834	4,763,318	37,391,206	46,489,229
1889	12,900,483	20,739,391	5,179,506	38,819,380	47,708,138
1890	14,362,870	22,428,249	5,058,210	41,849,329	49,512,630
1891	14,987,647	23,592,370	4,819,161	43,399,178	56,950,343
1892	15,237,093	24,399,014	4,812,361	44,448,468	56,994,253
1893	15,859,978	23,220,761	5,305,214	44,385,953	57,587,382
1894	16,542,860	21,423,496	5,803,673	43,770,029	57,401,514
1895	15,332,276	19,939,699	5,389,915	40,661,890	51,339,885
1896	15,846,645	23,299,776	5,354,181	44,500,602	55,786,960
1897	17,237,974	23,595,000	4,947,877	45,780,851	54,729,490
1898	19,305,693	26,868,366	4,514,424	50,688,283	60,103,944
1899	20,093,378	26,922,348	5,199,481	52,215,207	64,582,807
1900	20,922,098	24,662,906	9,592,867	55,177,871	67,712,252
1901	19,115,472	23,888,302	10,345,620	53,349,394	68,621,424
1902	21,104,036	24,891,813	9,734,007	55,729,856	70,275,615
1903	22,095,705	28,840,434	9,446,781	60,382,920	77,178,493
1904	23,502,876	28,278,310	9,530,816	61,312,002	80,508,064
1905	25,428,018	34,372,998	6,133,098	65,934,114	84,335,732
1906	28,071,648	39,045,168	5,606,666	72,723,482	94,180,788

It will be observed that the proportionate increase of passenger train mileage is much greater than the mileage of freight trains, which fact, read in the light of the earnings from these two sources, shows to what extent our railways have endeavoured to meet the demands of the travelling public. At the same time, it demonstrates with what success the growing volume of freight traffic is being handled without adding unduly to the train mileage.

OPERATING CHARGES.

Coming to the matter of operating expenses, and placing them side by side with the earnings, the facts are as follows:—

Year.	Earnings.	Operating expenses.	Percentage of operating expenses to earnings.
	$	$	
1875	19,470,539	15,775,532	81.1
1876	19,358,084	15,802,721	81.6
1877	18,742,053	15,290,091	81.5
1878	20,520,078	16,100,102	78.4
1879	19,925,066	16,188,282	81.2
1880	23,561,447	16,840,705	71.0
1881	27,987,508	20,121,418	71.9
1882	29,027,789	22,390,708	70.7
1883	33,244,586	24,691,667	74.3
1884	33,421,705	25,595,341	76.5
1885	32,227,469	24,015,351	74.5
1886	33,389,381	24,177,582	72.4
1887	38,841,609	27,624,683	71.1
1888	42,159,152	30,652,046	72.7
1889	42,149,615	31,038,045	73.6
1890	46,843,826	32,913,350	70.2
1891	48,192,099	34,960,449	72.5
1892	51,685,768	36,488,228	70.5
1893	52,042,396	36,616,033	70.3
1894	49,552,528	35,218,432	71.7
1895	46,785,486	32,749,668	69.9
1896	50,545,569	35,042,654	69.3
1897	52,353,276	35,168,665	67.1
1898	59,715,105	39,137,549	65.5
1899	62,243,784	40,706,217	65.3
1900	70,740,270	47,699,798	67.4
1901	72,898,749	50,368,726	69.0
1902	83,666,503	57,343,592	68.3
1903	96,064,526	67,481,523	70.2
1904	100,219,436	74,563,161	74.4
1905	106,467,198	79,977,573	75.2
1906	125,322,865	87,129,434	69.5

It would appear that, as compared with earlier years, the railways of Canada have been steadily improving their net earnings. For the first ten years the proportion of operating expenses to income was 76·8, while for the last decade the average has been 69·1. As applied to the larger figures involved in the latter calculation this result is significant.

Dividing up the operating charges under the four heads usually adopted, the showing is as follows:—

Years.	Maintenance of Way, Buildings, &c.	Per Cent.	Maintenance of Motive Power.	Per Cent.	Maintenance of Cars.	Per Cent.	General Expense in Conducting Trans-portation.	Per Cent.	Total.
	$ cts.		$ cts.		$ cts.		$ cts.		$ cts.
1875	3,548,585 13	23.0	4,679,270 95	30.3	1,543,607 84	10.0	5,653,079 00	36.7	15,424,542 92
1876	3,813,668 27	24.1	4,825,676 19	30.6	1,588,296 01	10.0	5,575,080 94	35.3	15,802,721 41
1877	3,226,765 76	21.1	4,816,349 44	31.5	1,515,774 50	9.9	5,731,201 78	37.5	15,290,091 48
1878	3,581,765 05	22.2	4,871,863 31	30.2	1,612,077 39	10.0	6,034,392 79	37.6	16,100,102 54
1879	3,826,474 23	23.7	4,791,227 73	29.7	1,442,162 22	8.9	6,019,829 13	37.7	16,079,693 31
1880	3,678,376 30	21.9	5,170,193 28	30.9	1,629,247 96	9.7	6,253,738 26	37.5	16,731,555 80
1881	4,115,097 78	20.6	5,975,719 96	30.0	2,065,214 63	10.3	7,747,510 66	39.1	19,903,543 03
1882	4,614,040 72	20.6	6,834,530 29	30.6	2,219,015 14	9.9	8,643,939 23	38.9	22,311,525 38
1883	4,967,924 79	20.0	8,230,877 39	33.4	2,248,164 25	9.1	9,217,890 68	37.5	24,664,857 11
1884	5,197,259 03	20.3	8,794,969 55	34.4	2,315,948 91	9.0	9,229,116 10	36.3	25,537,293 59
1885	5,066,726 95	21.9	7,921,045 20	34.5	2,262,865 44	9.8	8,717,906 20	33.8	22,968,543 79
1886	5,188,947 79	21.5	7,999,073 38	33.1	2,425,902 32	10.0	8,511,254 62	35.4	24,125,178 11
1887	6,405,390 14	23.1	9,114,874 96	33.0	2,761,929 46	10.0	9,331,975 73	36.9	27,614,170 09
1888	6,793,262 40	22.1	10,335,312 34	33.7	3,002,656 73	9.8	10,516,496 41	34.4	30,637,727 88
1889	7,018,848 53	22.6	10,168,284 37	32.7	2,790,568 26	8.9	11,056,436 25	35.8	31,034,137 41
1890	7,196,734 97	21.9	11,002,966 08	33.5	3,105,182 49	9.4	11,527,162 08	35.2	32,832,045 62
1891	7,502,236 52	21.4	11,777,898 63	33.7	3,191,201 85	9.1	12,489,112 20	35.8	34,960,449 20
1892	7,678,739 44	21.0	12,218,471 80	33.4	3,491,907 16	9.5	13,099,110 11	36.1	36,488,228 51
1893	7,616,733 64	20.8	12,121,469 03	33.1	3,410,363 90	9.3	13,467,466 43	36.8	36,616,033 00
1894	7,314,595 11	20.7	11,415,967 44	32.4	3,091,692 95	8.7	13,396,177 48	38.2	35,218,432 98
1895	7,028,103 81	21.4	10,399,162 42	31.7	2,744,753 87	8.3	12,577,648 89	38.6	32,749,668 99
1896	7,370,718 39	21.3	11,194,857 28	31.9	3,121,056 20	8.8	13,356,022 65	38.0	35,042,654 52
1897	7,601,411 07	21.4	10,861,072 40	30.8	3,069,085 16	8.7	13,637,096 97	39.1	35,168,665 60
1898	8,609,795 92	21.9	11,966,919 62	30.6	3,195,750 45	8.1	15,365,083 06	39.4	39,137,549 05
1899	8,972,393 08	22.0	12,620,377 24	31.0	3,285,134 40	8.7	15,828,312 49	38.3	40,706,217 21
1900	10,259,093 66	21.5	15,097,108 29	31.6	4,501,239 80	9.4	17,842,356 87	37.5	47,699,798 62
1901	11,195,400 68	22.2	16,467,767 90	32.3	4,420,473 61	8.7	18,285,084 03	36.8	50,368,726 22
1902	12,959,574 90	22.6	18,904,364 50	32.9	5,204,951 50	9.0	20,274,701 37	35.5	57,343,592 27
1903	15,502,711 07	22.9	22,816,599 77	33.8	6,016,229 61	8.9	23,145,982 88	34.4	67,481,523 33
1904	15,569,060 66	20.8	25,879,359 36	34.7	6,960,676 98	9.3	26,154,064 73	35.2	74,563,161 73
1905	17,839,124 33	22.3	26,869,705 23	33.6	7,750,866 81	9.7	27,517,877 23	34.4	79,977,573 60
1906	18,793,848 03	20.4	29,884,204 08	34.3	8,896,209 22	10.2	29,555,173 16	33.9	87,129,434 49

The comparative constancy of the percentages is striking. It would be most instructive to compare these results with those achieved by other railways—in the United States, for example—but this cannot be done, owing to differences in classification. Hereafter that difficulty will not appear. It is, however, gratifying to note the tendency to keep up the roadbed, which is indicated by the figures in the first column, and also to expend increasingly larger sums each year for the improvement of motive power and car service.

CAPITAL INVESTED.

The capital invested in Canadian railways has reached the large sum of $1,332,498,704, full particulars in relation to which will be found in the statistical statements in the main body of this report.

To this capitalization the following contributions have taken place:—

Dominion Government	$194,188,584
Provincial governments	43,278,022
Municipalities	17,125,164
Total	$254,591,770

Included with these payments, however, is the cost of the Intercolonial and the Temiscamingue and Northern Ontario railways. These are lines built, owned and operated by government—the former by the Dominion Government, and the latter by the Government of Ontario—and should not be incorporated with a statement intended to show the amount of aid granted toward railway construction. They are not eliminated this year, in order that uniformity may be maintained with previous reports; but in future years the account will be correctly presented.

It was intended to prepare a somewhat elaborate statement with respect to aid to railways, in view of the importance of the subject; but a number of difficulties arose, which proved insurmountable for the time being. The accounts of the provinces and those returned by the railways were found to show wide discrepancies, and it was also apparent that errors had crept into the statistics published by this department in years gone by. The matter will be carefully investigated between now and the publication of the next report, with a view to the compilation of an accurate return.

ACCIDENTS.

The return of accidents represents the dark side of the business of transportation. The danger accompanying the movement of trains is always very great, and when to this is added negligence and carelessness on the part of both employes and those who suffer, we have the factors which roll up annually a regrettable record of sacrifice. While these accidents are apparently inseparable from railway traffic, they nevertheless are nearly always avoidable. Unless someone blunders, or something breaks, such disasters as usually occur could not happen. The strengthening of equipment, the elimination of risky methods of handling trains, the introduction of safeguards in many forms, and the enforcement of rigid inspection, are all steps in the right direction. These agencies are now being applied

with more or less care on practically all our railway lines; and still the waste of life goes on. Following is the record since 1896:—

TOTAL FATAL ACCIDENTS—FROM 1896 TO 1906.

Year.	Passengers.	Employees.	Others.	Total.
1896	11	46	104	161
1897	7	76	130	213
1898	5	98	167	270
1899	20	119	145	284
1900	7	123	195	325
1901	16	118	183	317
1902	19	146	165	330
1903	53	186	181	420
1904	25	192	178	395
1905	35	206	227	468
1906	16	139	206	361

It will be observed that the number of fatal accidents in 1906 was less than during the three preceding years. This is gratifying; but only in the negative sense that the situation in this regard was not as bad as formerly. To know, however, that only one passenger in 1,749,361 was fatally injured on our Canadian railways is a striking proof of the relative safety with which this form of transportation is carried on.

CONCLUSION.

In conclusion, I desire to acknowledge the considerate kindness and hearty assistance which I have received from Professor Henry C. Adams, statistician, and Mr. W. E. Burleigh, assistant statistician, of the Interstate Commerce Commission at Washington.

I have the honour to be, sir,

Your obedient servant,

J. L. PAYNE,
Comptroller.

STEAM RAILWAY STATISTICS

OF THE

DOMINION OF CANADA

FOR THE

YEAR ENDED JUNE 30, 1906

(From Sworn Returns furnished by the several Railway Companies)

DEPARTMENT OF RAILWAYS AND CANALS.

THE SUMMARY of Tables of Steam Railways for the Years ended June 30, 1905, and June 30, 1906.

	Comparative Statement.	
	June 30, 1905.	June 30, 1906.
Miles of railway completed (track laid)	20,601	21,518
" sidings	3,632	4,085
" iron rails in main line	68	74
" steel " "	20,533	21,444
" " (double track)	838	878
Capital paid (including the four following items)	1,248,666,414	1,332,498,705
Government (Dominion and Provincial) bonuses paid	208,208,070	216,853,117
" " " loans paid	20,613,489	20,613,489
" (Provincial only) subscriptions to shares paid	300,000	300,000
Municipal aid paid	17,198,211	17,125,164
Miles in operation	20,487	21,353
Gross earnings	106,467,199	125,322,865
Working expenses	79,977,574	87,129,434
Net earnings	26,489,625	38,193,431
Passengers carried	25,288,723	27,989,782
Freight carried (tons)	50,893,957	57,966,713
Train mileage	65,934,114	72,723,482
Passengers killed	35	16
Number of elevators	281	320
" Highway crossings at rail-level, with watchman	222	203
" " " without watchman	13,746	12,962
" Overhead bridges, highway crossings over railway	472	431
" Highway crossings under railway	329	336
" Farm " "	251	394
" Level crossings of other railways	295	315
" Junctions with other railways	390	374
" " branch lines	234	265
" Engines owned	2,808	2,911
" " hired	98	20
" Sleeping cars owned	169	216
" " hired	25	19
" Parlor cars owned	41	92
" " hired	4	4
" Dining cars owned	58	75
" " hired	5	5
" Official cars owned	64	61
" First-class passenger cars owned	1,195	1,243
" " " hired	90	46
" Second-class and immigrant cars owned	680	715
" " " hired	3	1
" Baggage, mail and express cars owned	784	838
" " " hired	12	4
" Refrigerator cars owned	1,455	1,487
" " hired	56	168
" Cattle and box freight cars owned	55,060	61,081
" " " hired	2,169	848
" Platform cars owned	18,348	18,496
" " hired	321	29
" Coal cars owned	8,552	8,287
" " hired	235	8
" Conductors vans owned	1,363	1,416
" " hired	15	6
" Tool cars owned	802	1,325
" " hired	4	....
" Snow ploughs owned	319	340
" " hired	....	1
" Flangers owned	202	199
" " hired	....	6
" Other rolling stock	2,126	2,868
Included in the above there are the following:		
Number of cars with air brakes owned	75,429	85,616
" " " hired	2,749	826
" " automatic couplers owned	82,122	91,015
" " " hired	3,259	167

Nominal capital paid up to June 30, 1906.

	Miles constructed.	Amount.	Per mile.	Remarks.
		$ cts.	$ cts.	
Ordinary share capital	21,518	385,088,053 87	17,896 09	
Preference "	21,518	176,567,341 38	8,205 56	
Bonded debt	21,518	504,226,233 64	23,432 76	
Aid from Dominion Government	21,518	194,188,584 18	9,024 47	
" Ontario "	7,348	16,545,939 32	2,251 76	Equal to an average of $2,011.25 per mile on the total mileage.
" Quebec "	3,407	16,754,426 16	4,917 65	
" New Brunswick Government	1,623	4,186,137 71	2,579 26	
" Nova Scotia "	1,214	3,753,431 18	3,091 79	
" Prince Edward Island Government	267	.....	.....	
" Manitoba Government	2,823	1,916,952 75	679 05	
" British Columbia Government	1,663	121,135 00	72 84	
" Alberta & Saskatchewan Governments.	3,173	.....	.....	
" Municipalities in Ontario	7,348	12,928,290 18	1,759 43	Equal to an average of $795.85 per mile on the total mileage.
" " Quebec	3,407	2,896,536 08	850 17	
" " New Brunswick	1,623	341,500 00	210 41	
" " Nova Scotia	1,214	283,023 93	233 13	
" " Prince Edward Island	267	.....	.....	
" " Manitoba	2,823	490,600 00	173 79	
" " British Columbia	1,663	162,952 50	97 99	
" " Alberta & Saskatchewan	3,173	22,261 29	7 02	
Capital from other sources	21,518	12,025,395 66	558 85	
Total capital paid	21,518	1,332,498,704 83	.....	

Government and Municipal Loans, Bonuses, &c., promised to Railways Completed and under Construction up to June 30, 1906.

	$ cts.
Dominion Government	198,227,484 08
Ontario "	16,728,012 89
Quebec "	17,710,273 08
New Brunswick Government	4,432,637 71
Nova Scotia "	3,917,620 78
Manitoba "	1,916,952 75
British Columbia "	121,135 00
Municipalities in Ontario	12,945,197 80
" Quebec	4,645,574 00
" New Brunswick	341,500 00
" Nova Scotia	333,023 93
" Manitoba	595,600 00
" British Columbia	162,952 50
" Alberta and Saskatchewan	25,000 00
Total	262,102,964 52

NOTE **B.**—Memorandum of adjustment with Statement No. 3, Part II, being Accountant of Department of Railways and Canals Statement of Railway Subsidies to June 30, 1906.

		$ cts.
Total Dominion Government aid paid—Statement I.		194,188,584 18
Add Atlantic and North-west Railway (portion in United States)		1,963,500 00
St. Catharines and Niagara Railway (Electric Railway) in Electric Ry. Statistics		38,400 00
Oshawa Railway and Navigation Co " " "		22,400 00
		196,212,884 18
LESS—Intercolonial Railway, including Windsor Branch Railway (cost)	$ 81,238,728 63	
Prince Edward Island Railway (cost)	7,215,654 34	
Canadian Pacific Railway, construction of lines built by Dominion (not including surveys) and transferred to Canadian Pacific Railway Co.	31,145,738 54	
Grand Trunk Railway Company (loan)	15,142,633 33	
Kent Northern Railway (rails loan)	58,334 27	
Salisbury and Harvey Railway (loan, including rails)	29,391 01	
St. John Bridge and Railway Extension (loan)	433,900 00	
Windsor and Annapolis Railway	1,193,369 00	
Canadian Pacific Railway subsidy	25,000,000 00	
Western Counties Railway subsidy	500,000 00	161,957,749 12
Agreeing with subsidy No. 3, Part II, Accountant of Department of Railways and Canals Statement to June 30, 1906		$ 34,255,135 06

STEAM RAILWAYS.

Total Fatal Accidents for Year ended June 30, 1906.

	Passengers Killed.	Employees Killed	Others Killed.	Total Killed.
Falling from cars or engines	4	12	3	19
Jumping on or off trains in motion	5	8	20	33
At work on or near the track making up trains		13		13
Putting heads or arms out of window		1		1
Coupling cars		10		10
Collisions, or by trains thrown from track	1	35	2	38
Struck by engines or cars on highway crossings	1	2	47	50
Walking, standing, lying, sitting or being on track	5	38	125	168
Explosions		2		2
Striking bridges		1		1
Other causes		17	9	26
Total killed	16	139	206	361

TABLE showing Location of the Steam Railways of the Dominion of Canada, June 30, 1906.

Name of Railway.	Description.	Distance. Miles.	Total.
Alberta Railway and Coal Co, now, Alberta Railway and Irrigation Co.	From Lethbridge in District of Alberta, N.W.T., to Coutts, on International boundary, 4 ft. 8½ in. gauge. Also third rail for 20 miles, making a gauge of 3' 0". The portion from Dunmore to Lethbridge, 107 miles, was changed to 4 ft. 8½-in. gauge and sold to Can. Pac. Ry., 29th Nov., 1893.		66·72
Albert Southern.	Harvey Branch Junction to Alma, N.B.	16·00	
	Harvey Branch Albert to Harvey Bank, N.B.	3·00	
			19·00
Algoma Central and Hudson Bay.	Sault Ste. Marie to Chippewa River—Main line	69·00	
	Branch—Michipicoten to Helen Mines	12·00	
	" Josephine Jct. to Josephine Mine	10·50	
	Mile 20 to Maple Camp	1·00	
	Lake Wilde to Breiting Mine	2·00	
	Mile 68 to Chippewa River	1·00	
			95·50
Atlantic, Quebec and Western.	102 miles under construction		
Baie des Chaleurs in Atlantic and Lake Superior System.	Metapedia Station on I.C.R. to Paspebiac, 100 miles.		100·00
Bay of Quinté Railway.	Deseronto to Bannockburn	76·00	
	" west of Deseronto	2·00	
	" Deseronto Junction	4·00	
	Yarker to Sydenham	11·37	
			93·37
Bedlington and Nelson	International Boundary at Port Hill to Jct. Can. Pac. Ry. at Creston, and from Junct. with C.P.R. at Sirdar to Kusconnok		15·30
Beersville Coal and Railway Co.	From Adamsville to Mount Carlyle		8·63
British Yukon	White Pass to White Horse Spur, B.C., and Branch to White Horse		90·32
Buctouche and Moncton	Moncton, on Intercolonial Railway, to Buctouche, N.B.		32·00
Brockville, Westport and North Western	Brockville to Westport, Ont		45·00
Bruce Mines and Algoma	Town of Bruce Mines to Rock Lake Mine		17·28
Calgary and Edmonton (now Can. Pac. Ry)	Calgary to Edmonton	190·60	
	" MacLeod, District of Alberta	105·60	
			296·20
Canada Atlantic, including Ottawa, Arnprior and Parry Sound Ry	City of Ottawa to Junction with Grand Trunk at Lacolle and U.S. boundary. Crosses the St. Lawrence at Coteau by bridge. Connects with Grand Trunk Railway at Coteau and Lacolle, and Ottawa to Depot Harbour, Lake Huron, near Parry Sound		395·60
Central Counties, Leased to Canada Atlantic.	From Glen Robertson, on Canada Atlantic to Hawkesbury, Ont.	21·00	
	South Indian, on Canada Atlantic, to Rockland	16·40	
			37·40
Canadian Northern	Port Arthur to Winnipeg	438·60	
	Beaver to Edmonton	752·20	
	Branches—Stanley Junction to Gunflint Lake	66·90	
	" Carman Junction to Somerset	78·90	
	" Neepawa Junction to McCreary Junction	70·40	
	" Gilbert Plains Junction to Prince Albert	360·60	
	" Sifton Junction to Winnipegosis	21·20	
	" Emerson to Ridgeville	11·60	
	" Winnipeg Transfer Track	9·96	
	" Rossburn Junction to Rossburn	79·00	
	" Greenway to Adelpha	52·10	
	" Arizona Junction to Brandon Junction	77·00	
	" Brandon Junction to Carberry	22·80	
	" Oak Point Junction to Oak Point	54·00	
	" Hartney to Virden	36·46	
			2,131·72

TABLE showing Location of Railways, &c.—*Continued.*

Name of Railway.	Description.	Distance. Miles.	Total.
Canada Coals and Railway Co., formerly Joggins	Maccan Station, I.C.R., to Joggins Coal Mine	.....	12 00
Canada Southern	Main Line—Windsor, Ont., to Suspension Bridge	226·18	
	Amherstburg Branch—Essex Centre to Amherstburg	16·83	
	St. Clair Branch—St. Clair Junction to Courtright	62·63	
	Fort Erie Branch—Fort Erie to Welland Junction	17·50	
	Erie and Niagara Branch—Old Fort Erie to Niagara	30·60	
	Oil Springs Branch—Oil Springs to Oil City	5·50	
Leased	Sarnia, Chatham and Erie—Oil City to Petrolea	7·00	
"	Leamington and St. Clair—Comber to Leamington	15·95	
			382.19
Canada Eastern, now included in Intercolonial System	Late Northern and Western of New Brunswick		
	Gibson, opposite City of Fredericton to Chatham Junction, I.C.R.	107·00	
	Chatham Junction to Chatham and Logieville via Nelson	20·00	
Canadian Pacific: Owned	Main Line—Quebec to St. Martin's Junction	159·80	
	" Montreal to Ottawa	120·30	
	" Ottawa to Bonfield	223·60	
	" Bonfield to Vancouver	2,568·00	
			3,071·70
	Branches—Dunmore to Crows Nest	213·90	
	" Piles Junction to Grand Piles	26·90	
	" Berthier Junction to Berthier	2·10	
	" Joliette Junction to St. Félix	16·60	
	" Ste. Thérèse Junction to St. Jérome	13·30	
	" " to St. Eustache	6·00	
Montreal and Western	" St. Jérome to Labelle	66·90	
	" St. Lin Junction to St. Lin	15·10	
	" Buckingham Stn. to Buckingham Village	3·20	
Brockville and Ottawa Railway	" Carleton Junction to Brockville	44·90	
	" Sudbury to Sault Ste. Marie	179·30	
	" Sudbury to Copper Mines	5·60	
	" Dyment to Ottamine	6·90	
	" Molson to Lac du Bonnet	22·00	
	" McGregor to Varcoe	54·90	
	" Whittier Junction to Emerson	63·60	
	" Rugby Junction to Manitou	99·60	
	" Rugby Junction to Winnipeg Beach	48·20	
	" Rosenfeldt to Gretna	13·70	
	" Rugby Junction to Teulon	37·30	
	Souris Branch—Kenmay to Estevan	156·20	
	Souris Branch—Glenboro' to Souris	45·70	
	Souris Branch—Deloraine to Napinka	18·70	
	Branches—Schwitzer Junction to Regina	207·80	
	" North Portal to Pasqua	160·30	
	" New Westminster Jct. to New Westminster	8·20	
Lake Témiscamingue Colonization	" Mattawa to Kippewa	47·90	
	" Mission Junction to Sumas	10·00	
	" Revelstoke to Arrow Head	27·70	
	" Vancouver to Coal Harbour	1·20	
	" Three Forks to Sandon	4·20	
	" Wood Bay to Mowbray	25·70	
	" North Star Junction to Kimberly	19·10	
	" Deloraine to Lyleton	36·50	
	" Fernie to Fernie Mines	5·00	
	" Kirkella to Strasburg	200·40	
	" Marysville Junction to Marysville	·90	
	" Crows Nest to Kootenay Landing	180·9	
	" Selkirk Junction to Selkirk	·90(	
			2,097·30
	Total mileage owned	.....	5,169·00

TABLE showing Location of Railways, &c.—*Continued.*

Name of Railway.	Description.	Distance. Miles.	Total.
Canadian Pacific—*Continued.*			
Leased Lines	Atlantic and North-west (in Canada)—		
	South end Lachine Bridge to Maine boundary, Que.	182·60	
	Renfrew Jct. to Eganville, Ont.	18·80	
			201·40
Leased lines	St. Lawrence and Ottawa—		
	Ottawa to Prescott, Ont	51·70	
	Chaudière Junction to Sussex St., Ottawa.	6·60	
			58·30
	Ontario and Quebec—		
	Montreal (Windsor Sta.,) to Toronto Jct.	338·90	
	Mile End to Adirondack Jct.	10·00	
	St. Luc Jct. to Western Jct	1·70	
	Toronto Jct. to Toronto (Union Station).	4·70	
	Leaside Jct. " "	5·30	
	London to Windsor	112·60	
			473·20
	Credit Valley—		
	Toronto Junction to St. Thomas	116·80	
	Streetsville Junction to Melville Jct	31·60	
	Cataract to Elora	27·30	
			175·70
	West Ontario Pacific—Woodstock to London		26·60
	Toronto, Grey and Bruce—		
	Toronto Junction to Owen Sound	116·60	
	Orangeville Junction to Teeswater	67·90	
	Wingham Junction to Wingham.	4·60	
	Mount Forest Tank to Mount Forest	1·20	
			190·30
	Guelph Junction—		
	Guelph Junction on Credit Valley Ry. to Guelph.		15·00
	Montreal and Lake Maskinongé—		
	St. Félix to St. Gabriel de Brandon.		11·00
	Montreal and Ottawa—		
	Vaudreuil to Jct. with the Canada Atlantic	86·70	
	Rigaud to Pt. Fortune	6·80	
			93·50
	Lindsay, Bobcaygeon and Pontypool—		
	Burketon Junction to Bobcaygeon		38·70
	Toronto, Hamilton and Buffalo—		
	Hamilton Junction to Hamilton		2·70
	Cap de la Madeleine—		
	From Main Line C.P.R., at Junction with Piles branch to Cap de la Madeleine		2·30
	New Brunswick—		
	Woodstock to Maine boundary	59·50	
	Newburg Junction to Fredericton	58·00	
	Aroostook Junction to Edmondston	57·10	
			174·60
	St John and Maine—		
	Vanceboro to McAdam Junction	6·00	
	McAdam Junction to Fairville	81·80	
	Fairville to Carleton.	4·00	
	St. John Bridge and Railway Extension—		91·80
	Fairville to St. John		2·00
	Fredericton—		
	Fredericton Junction to Fredericton		22·10
	New Brunswick and Canada—		
	McAdam Junction to St. Stephen.	33·90	
	Watt Junction to St. Andrews.	27·50	
	McAdam Junction to Woodstock.	51·10	
	Debec Junction to Maine boundary	5·10	
	St. Stephen and Milltown Ry.—		117·60
	St. Stephen to Milltown.		4·60
	Tobique Valley—		
	Perth Centre to Plaster Rock.		27·50

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TABLE showing Location of Railways, &c.—*Continued*

Name of Railway.	Description.	Distance. Miles.	Total.
Canadian Pacific—*Continued.*			
Leased lines	Manitoba and Northwestern—		
	Portage la Prairie to Yorkton	222·90	
	Binscarth to Russell	11·30	
	Yorktown to Sheho	42·20	
	Saskatchewan and Western—Minnedosa to Rapid City	18·20	
		294·60	
	Manitoba South-western Colonization—		
	Manitou to Deloraine	100·30	
	La Riviere to Glenboro'	103·30	
	Elm Creek to Carman	12·10	
		215·70	
	Great North-west Central—		
	Chater to Miniota	71·00	
	Forrest to Lenore	40·70	
		111·70	
	British Columbia Southern—Nelson to Proctor	20·40	
	North-ern Colonization—Labelle to Nominique	23·50	
	Shuswap and Okanagan—From Jct. with C. P. R. at Sicamous to Lake Okanagan	50·80	
	Nakusp and Slocan—Nakusp on Arrow Lake to Three Forks of Carpenter's Creek, B.C.	36·50	
	Columbia and Western—		
	Castlegar Junction to Midway	101·00	
	Castlegar Jct. to Rossland	29·30	
	Trail to Smelter Junction	2·00	
	Mining Spurs, including Rossland to LeRoi	24·80	
		157·10	
	Kootenay and Arrowhead—Lardo to Gerrard	33·20	
	Columbia & Kootenay—		
	Nelson to Robson	27·40	
	Spur to mouth of Kootenay River	·80	
	Slocan Junction to Slocan	31·30	
		59·50	
	Vancouver and Lulu Island, Vancouver, to Steveston	16·90	
	Calgary and Edmonton—		
	Calgary Junction to Strathcona	190·60	
	" to MacLeod Junction	105·20	
	Wetaskiwin to Daysland	51·00	
	Lacombe to Stettler	49·60	
		396·40	
	Ottawa Northern and Western—		
	Ottawa to Waltham (including Interprovincial Bridge)	78·20	
	Hull Junction to Maniwaki	80·50	
		158·70	
	Tilsonburg, Lake Erie and Pacific—Ingersoll to Port Burwell	33·40	
			3,337·30
	Total mileage leased		5,169·00
	" owned		8,506·30
	" in Can. Pac. system		
Canadian Government Railways.	Intercolonial—		
	Halifax to Truro	61·83	
	Dartmouth Branch	12·38	
	Truro to Moncton	124·03	
	Moncton to St. John	89·36	
	Point du Chene Branch	11·38	
	Moncton to Campbellton	185·16	
	Campbellton to St. Flavie	105·09	
	Indian Town Branch	13·51	
	St. Flavie to Riviere du Loup	83·28	

TABLE showing Location of Railways, &c.—*Continued.*

Name of Railway.	Description.	Distance. Miles.	Distance. Total.
Canadian Government Railways.	Intercolonial—*Concluded*—		
	River Ouelle Branch	6·25	
	Riviere du Loup to Point Levis	115·47	
	Hadlow to Chaudière Curve	5·62	
	St. Charles Junction to Chaudière Junction	16·98	
	Dalhousie Branch	7·00	
	Pictou to Oxford Junction	69·10	
	Brown's Point to Stellarton	12·23	
	New Glasgow Junction to Pictou Landing	7 76	
	Pugwash Junction to Pugwash	4·70	
	Truro to Mulgrave	123·07	
	Point Tupper to Sydney	91·48	
	North Sydney Branch	4·38	
	Fredericton to Loggieville	125·00	
	Sydney Mines Branch	2·70	
	Freight Branches	39·72	
	Ys at various places	3·62	
		1,321·10	
	Windsor Branch (32 miles) of I. C. Ry. is operated by Dominion Atlantic Ry.		
	Drummond County—		
	Chaudière to Ste. Rosalie Jct. with Grand Trunk	115·95	
	St. Leonard to Nicolet and Balls Wharf on St. Lawrence	14·61	
			1,451·66
	Prince Edward Island—		
	Main Line—Tignish to Georgetown	158·60	
	Charlottetown to Murray Harbour	52·30	
	Branch—Mount Stewart to Souris	38·40	
	" Montague Junction to Montague	6·20	
	" Emerald to Cape Traverse	12·00	
			267·50
			1,719·16
Cape Breton Railway	Point Tupper to St. Peters	30·00	
	Terminal at St. Peters	1·00	
			31·00
Caraquet	From Gloucester Junction, Intercolonial Railway, 5 miles south of Bathurst Station, easterly along the south shore of Baie des Chaleurs to Shippigan Harbour, N.B.		68·00
Carillon and Grenville	Carillon to Grenville, Que., connecting at both termini with Ottawa River Navigation Company's steamers (Gauge, 5 ft. 6 in.)		13·00
Central Ontario	From Picton, in Prince Edward County, to Bancroft Branch, Ormsby Jct. to Coe-Hill Iron Mines, Wallaston, County of Hastings; connects with Grand Trunk at Trenton, Midland Railway, 2 miles west of Stirling, and with Ontario and Quebec, in Township of Rawdon	117 00 8·00	125·00
Central Railway of New Brunswick, now New Brunswick Coal and Railway Co.	From Norton Station, on the Intercolonial Railway, to Chipman	44·66	
	Extension, Chipman to Minto	13·34	
			58·00
Coast Line, Nova Scotia, now Halifax and Yarmouth	Yarmouth to Barrington Passage		50·20
Cobourg, Northumberland and Pacific, now Campbellford, Lake Ontario and Western	From Cobourg, Ont., to Junction with Central Ontario Railway, 49 miles under construction.		

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TABLE showing Location of Railways, &c.—*Continued.*

Name of Railway.	Description.	Distance. Miles.	Total.
Cumberland Railway and Coal Company (formerly Spring Hill and Parrsboro')	Spring Hill Junction, Intercolonial Railway, to Spring Hill Coal Mines, N.S., and Parrsboro', on the Bay of Fundy		32·00
	Spring Hill and Oxford Branch, 14 miles from Spring Hill Mines to Oxford Village on the Oxford and New Glasgow Branch, I.C.R., not in operation.		
Crows Nest Southern	International Boundary to Fernie, B.C.		53·20
Dominion Atlantic, comprising Windsor and Annapolis, Yarmouth and Annapolis and Cornwallis Valley and lease of Windsor Branch of Intercolonial and Midland of Nova Scotia	Windsor to Yarmouth	171·00	
	Branches—		
	Wilmot to Torbrook	4·50	
	From Kentville to Kingsport, on Basin of Minas (formerly Cornwallis Valley Railway)	14·00	
	Windsor Branch of I.C.R.—Windsor to Windsor Junction, Intercolonial Railway, 14 miles from Halifax, leased	32 00	
	Windsor to Truro	58·00	
			279·50
Edmonton, Yukon and Pacific	Strathcona to Edmonton, N.W.T.		4·50
Elgin and Havelock	From Elgin, County of Albert, N.B., to Petitcodiac Junction with Intercolonial Railway; thence to Havelock in County of King's, N.B	27 00	
	Havelock to Keith's Mills	1·00	
			28·00
Esquimalt and Nanaimo	Victoria to Wellington, Island of Vancouver		78·00
Fredericton and St. Mary's Ry. Bridge, now in Intercolonial Ry.	Over the St. John River, connecting the Fredericton Railway, at Fredericton, with the New Brunswick Railway, and Canada Eastern Ry., at St. Mary's.		
Grand Trunk (owned)—			
Main Line	Pt. Edward to Pt. Levis and Boundary Line, Vermont.	543·47	
	York to Sarnia Tunnel	177·95	
	Suspension Bridge, Niagara Falls to Windsor	229·81	
			951·23
Branches, Eastern Division	Arthabasca Branch	35·34	
	St. Lambert to Ft. Covington (Boundary)	67·20	
	Brosseaus to Rouse's Point (Boundary)	36·79	
	St. Isidore to Province Line	24·15	
	St. Martine to Beauharnois	5·90	
	Jubilee Bridge to Dorval	12 62	
	Jacques Cartier Union Ry	6·54	
	St. Paul Branch	1·08	
	St. Henri curve	0·34	
	Wharf Branch, Lachine	0·68	
	Kingston Branch	2·25	
			192·89
Northern Division	Belleville Harbour to Midland	163·96	
	Madoc Junction to Eldorado	22·01	
	Port Hope to Peterboro'	30·95	
	Peterboro' to Lakefield	9·24	
	Millbrook Junction to Omemee Junction	15·12	
	Blackwater to Coboconk	36·19	
	Scarboro Junction to Haliburton	114·82	
	Whitby Harbour to Manilla Junction	33·71	
	Stouffville to Jackson's Point	26·91	
	North Parkdale to North Bay	222·42	
	Muskoka Wharf Branch	1·00	
	Burlington Junction to Allandale	84 00	
	Allandale to Meaford	53·88	
	Colwell to Penetang	33·30	
	Beeton Junction to Lake Junction	40·85	
			888·36

TABLE showing Location of Railways, &c.—*Continued.*

Name of Railway.	Description.	Distance. Miles.	Total.
Grand Trunk (owned)—*Con.*— Middle Division	Blackwell to Point Edward	5·21	
	Galt to Elmira	25·02	
	St. Mary's to London	21·13	
	Bathurst St., Toronto to Hamilton	37·95	
	Port Dover to Hamilton	40·25	
	Burlington Beach Line	11·33	
	Stoney Creek and Gages connections	2·56	
	Komoka to Sarnia	50·85	
	Sarnia to Point Edward	2·67	
	Petrolia Branch	4·71	
	Lynden to Brantford	4·12	
	Fort Erie to Glencoe	145·55	
	Glencoe to Kingscourt	21·01	
	Port Colborne to Port Dalhousie	25·14	
	Clifton to Port Robinson	9·75	
	Welland Junction	0·20	
	Harrisburg to Tilsonburg Junction	42·54	
	Port Dover to Tavistock	55·68	
	Simcoe to Port Rowan	17·00	
	Harrisburg to Southampton	128·44	
	Palmerston to Durham	26·73	
	Harriston to Wiarton	63·97	
	Stratford to Palmerston	36·60	
	Listowell to Kincardine	57·66	
	Hyde Park to Wingham	68·88	
	Cobourg to Harwood (not in operation)	15·00	
			919·95
			2,952·43
Leased and partly owned	Buffalo and Lake Huron Ry.		
	Fort Erie to Goderich	161·30	
	Owen Sound Branch		
	Park Head to Owen Sound	12·40	
			173·70
	Total mileage owned and leased		3,126·13
St. Clair Tunnel and approaches	Under the St. Clair River, between Sarnia and Port Huron—connecting the Grand Trunk Railway with railroads in State of Michigan		
	(Length of tunnel between portals 6,000 ft., cylindrical in section with clear inside diameter of 19 ft. 10 inches).		2·25
Great Eastern in Atlantic and Lake Superior system	From junction with South Eastern Railway at Yamaska to River St. Francis	6·00	
	From Nicolet to Junction with Grand Trunk Railway at St. Grégoire	7·00	
	Yamaska to Sorel	10·00	
Great Northern, including Lower Laurentian and Montfort and Gatineau Railways, now Canadian Northern Quebec Ry., including Chateauguay and Northern Ry.	Pierreville to Nicolet, 15 miles under construction. St. Grégoire to Chaudière Junction, 67 miles under construction.		23·00
	From Montreal to Garneau Junction	97·70	
	From Shawenegan Junction to Shawenegan Falls	4·50	
	From St. Jérôme Junction to St. Jérôme	1·70	
	From Junction with Montreal and Western, near St. Sauveur, to Arundel	33·00	
	From Garneau Junction to Riv. à Pierre	40·00	
	From Joliette to Hawkesbury	67·00	
	From St. Jacques to St. Jacques	7·20	
			251·10

TABLE showing Location of Railways, &c. —*Continued.*

Name of Railway.	Description.	Distance. Miles.	Total.
Grand Trunk Pacific	Under construction, 931 miles		
Gulf Shore	Junction with Caraquet Railway at Pokemouche to Tracadie operated by Caraquet Ry.		16·78
Halifax and South-western, formerly Nova Scotia Southern, including Central Nova Scotia. Halifax and Yarmouth and Middleton and Victoria Beach.	Halifax to Liverpool	110·10	
	Mahone Junction to Lunenburg	7·60	
	Bridgewater Junction to Middleton Junction	53·20	
	New Germany Junction to Caledonia	21·80	
	Yarmouth to Barrington Passage	50·20	
			242·90
Hampton and St. Martin, formerly St. Martin and Upham	From Hampton on Intercolonial Ry. to St. Martin, County of St. John, N.B., on Bay of Fundy		30·00
Hereford	From International Boundary to Dudswell, County Wolfe, connects with Canadian Pacific Railway at Cookshire, Maine Central at International boundary, and with Quebec Central at Dudswell	48·50	
	Dudswell to Lime Quarries (Dominion Lime Company)	4·80	
			53·30
Indian River			
Interprovincial Railway Bridge and approaches, now included in Ottawa, Northern & Western	Megantic to Boundary, under construction, 18·10 miles		
Irondale, Bancroft and Ottawa	Across the Ottawa River at City of Ottawa 1·40		
Inverness and Richmond, now Inverness Ry. and Coal Co.	From Junction with Grand Trunk Railway, near Kinmount Station, to Bancroft Station		48·00
James Bay, now Can. Northern Ontario	Inverness to Point Tupper Junction		61·00
Kaslo and Slocan	Under construction, 312 50 miles		
	From Kaslo to Sandon, B.C.	28·02	
	From Junction to Cody	3·06	
			31·08
Kent Northern and leased line	Richibucto, N.B., to Kent Jct. Intercolonial Railway		27·00
St. Louis and Richibucto	Richibucto to St. Louis		7·00
Kettle River Valley	Grand Forks to International boundary		3·86
Kingston and Pembroke	Main Line Kingston to Renfrew	103·10	
	Glendower Branch—Bedford to Zanesville Mine	4·00	
	Robertsville Branch—To Robertsville Mines	1·00	
	Branches—To Doran's Mills, Charcoal Works McLaren's Mills, Bethlehem Iron Mines, Lavant Mills, Clyde Forks Mills, Wilson's Mine, Carswell's Mills, William's Mine, Cameron Bay	4·75	
	(Connects with Grand Trunk at Kingston, Canadian Pacific at Sharbot Lake and at Renfrew.)		
			112·85
Klondike Mines Railway	Dawson City to Stewart River, 30 miles under construction		15·00
Lenora Mount Sicker	Lenora Mines to Crofton, B.C.		12·50
Lotbinière and Mégantic	Lyster Station, Grand Trunk, to St. Jean des Chaillons		30·00
L'Assomption	L'Epiphanie Station, C.P.R., to L'Assomption		3·50
Lake Erie and Detroit River	Walkerville, Ont., to St. Thomas	126·78	
Erie and Huron	Rondeau to Sarnia	72·63	
			199·41
London and Port Stanley	London to Port Stanley on Lake Erie		24·00
Liverpool and Milton	From Liverpool, N.S., to Milton		5·50
Manitoulin and North Shore	Sudbury to Gertrude Mines	13·50	
	Stanley Jct. to Spanish River	1·50	
	Elsie Jct. to Mines	1·00	
			16·00
Maganetawan River	Burks Falls, on Grand Trunk Ry., to Maganetawan River		1·91
Middleton and Victoria Beach, now included in Halifax and Southwestern system	Middleton to Victoria Beach.		

TABLE showing Location of Railways, &c.—*Continued.*

Name of Railway.	Description.	Distance. Miles.	Total.
The Manitoba Ry., formerly—The Northern Pacific & Manitoba, the Winnipeg Transfer Ry., the Portage and Northwestern, the Waskada and Northeastern leased to Govt. of Manitoba and operated by the Canadian Northern	International boundary to Winnipeg, and branches		350·48
Marmora Ry. and Mining Co., (formerly Ontario, Belmont and Northern)	Central Ontario Junction to Wanston		9·60
Midland of Nova Scotia (formerly Stewiacke Valley)	From Windsor to Truro, N.S., *see* Dominion Atlantic Railway		
Massawippi Valley	From Lennoxville to Vermont boundary, there connecting with Connecticut and Passumpsic Rivers Railway; also connects with Grand Trunk and C.P.R., at Lennoxville	31·95	
	Branch—Stanstead Junction to Stanstead	3·51	
			35·46
Montreal and Vermont Junction.	From Junction with Stanstead, Shefford and Chambly Railway, 2½ miles east of St. Johns, P.Q., to Junction with Vermont and Canada Railway, at Vermont boundary; also connects at Stanbridge with Lake Champlain and St. Lawrence Junction Railway		23·60
Montreal, Portland and Boston, now Montreal and Province Line	Junction with Grand Trunk at St. Lambert to Farnham	32·00	
	Marieville to St. Césaire	8·60	
	Farnham to Freligsburgh	18·00	
			58·60
Montreal and Atlantic (formerly Southeastern	Main Line—Farnham to Richford on International boundary	43·70	
	Sutton Junction to Drummondville	59·20	
		102·90	
	Leased—Lake Champlain and St. Lawrence Junction—Stanbridge to St. Guillaume	60·50	
			163·40
	(Connects with Connecticut and Passumpsic, Grand Trunk and Stanstead, Shefford and Chambly Rys.)		
Morrissey, Fernie and Michel	From Swinton to Carbonado, B.C—leased line		10·85
Nelson and Fort Sheppard	From Five Mile Point to Fort Sheppard on International boundary, B.C.		55·41
New Glasgow Iron, Coal and Railway Company, now Nova Scotia Steel and Coal Co	From Ferrona Junction, I.C.R., to Sunny Brae		12·50
New Brunswick and Prince Edward Island	From Sackville Station, Intercolonial Railway to Cape Tormentine		36·00
New Brunswick Southern (formerly Shore Line)	St. John, N.B. to St. Stephen, N.B.		82·50
New Westminster Southern	Douglas to South Westminster		24·10
Nosbonsing and Nipissing	From Lake Nosbonsing to Lake Nipissing		5·50
Orford Mountain	Eastman on C.P.R. to Lawrenceville	10·00	
	Eastman to Bolton Line	12·00	
	Lawrenceville to Windsor Mills	26·50	
			48·50
Ottawa Valley in Atlantic and Lake Superior System	Lachute on C.P.R., to St. Andrews on Ottawa River		7·00
Ottawa and New York	From Ottawa to International boundary near Cornwall		56·90
Pembroke Southern leased to Canada Atlantic	From Pembroke to Golden Lake		20·90
Philipsburg Ry. and Quarry Co.	Stanbridge Station of Canadian Pacific and Central Vermont Railways, to Philipsburg, Missisquoi Co.		7·50
Pontiac and Renfrew	From Wyman's Station, on Pontiac Pacific Junction Railway, to Bristol Iron Mines, County Pontiac, Que		4·25

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TABLE showing Location of Railways, &c.—*Continued.*

Name of Railway.	Description.	Distance. Miles.	Total.
Qu'Appelle, Long Lake and Saskatchewan	From Canadian Pacific Railway at Regina, Northwesterly to Long Lake and Prince Albert		253·96
Quebec Bridge and approaches to connect adjacent railways	(Across St. Lawrence River at Quebec, under construction 10 miles.)		
Quebec and Lake St. John	Quebec to Roberval	189·00	
	Chambord Junction to Chicoutimi	51·00	
	Valcartier to St. Gabriel	4·00	
			244·00
Quebec Central	Main Line—Sherbrooke to Harlaka Junction, Intercolonial Railway 5 miles from Lévis, Que	137·50	
	Chaudière Branch, Beauce Junction to St. Francis	15·00	
	Angus Branch—East Angus to Angus Mills	1·00	
	Tring Megantic—Tring Junction to Megantic	60·00	
	(Connects with Grand Trunk, Canadian Pacific and Boston and Maine Rys. at Sherbrooke).		213·50
Quebec and New Brunswick	From Chaudiere Junction to Connors, N.B., 135 miles, 3 miles under construction.		
Quebec, Montmorency and Charlevoix	Hedleyville, Parish of St. Roch, Quebec, to Cap Tourmente		30·00
Quebec Southern, comprising East Richelieu Valley Railway and United Counties—	Noyan Junction to St. Robert Junction	82 00	
And South Shore Railway	From Pierreville to Junction with Grand Trunk at St. Lambert	61·75	
			143·75
Red Mountain	From International boundary Line, B.C., to Rossland		9·59
Restigouche and Western, now International of New Brunswick	Campbellton, N.B., to St. Leonard's, 110 miles (81 miles under construction)		29·00
Rutland and Noyan	International Boundary to Noyan Jct.		3·39
Stanstead, Shefford and Chambly	From Junction with Montreal and Vermont Junction Railway, near St. John, Que., easterly to Waterloo		43·00
St. John Bridge and Railway Extension, now leased by Canadian Pacific Ry.	From St. John to Fairville, crosses St. John River at the Falls by a cantilever steel bridge, and connects Intercolonial Railway with New Brunswick Railway, C.P.R., included in Canadian Pacific System, 2·00 miles.		
St. John Valley and Rivière du Loup	From Fredericton, N.B., to Woodstock, N.B., 66 miles, of which 6 miles are built		
Salisbury and Harvey (formerly Albert Railway)	Salisbury to Albert, N.B.		45·00
Schomberg and Aurora	Bond Lake, Ont., to Schomberg		14·40
St. Lawrence and Adirondack	From Jct. with Canada Atlantic near Valleyfield to International boundary	19 92	
	Beauharnois to Junction with Canadian Pacific at Adirondack Junction	12·90	
	Leased—Valleyfield to Beauharnois	13·30	
			46·12
Sydney and Louisburg (Dominion Coal Co)	Sydney Harbour to Louisburg Harbour	39·30	
	Branches to coal mines	13·44	
	Sydney Junction to Sydney	1·25	
			53·99
St. Mary's River, now Alberta Railway and Irrigation Co.	Stirling to Cardston (Alberta.)		47·00
Temiscamingue and Northern Ontario	North Bay to New Liskeard, 100 miles under construction.		113 00
Thousand Islands	Gananoque on St. Lawrence River to Gananoque Station, G.T.R.		6·33

TABLE showing Location of Railways, &c.—*Concluded.*

Name of Railway.	Distribution.	Distance. Miles.	Total.
Témiscouata	Rivière du Loup, Que., on Intercolonial, to Edmundston, N.B., on the New Brunswick Railway	81·00	
	Branch—Edmundston to Connors, on St. John River	32·00	
			113·00
Tilsonburg, Lake Erie and Pacific	Port Burwell to Ingersoll, now in Can. Pac. Ry		
Toronto, Hamilton and Buffalo, including Brantford, Waterloo and Lake Erie	Waterford Jct. with Canada Southern to Welland Junction with Canada Southern—passing through the city of Hamilton	79·88	
	Hamilton to Grand Trunk Junction	·27	
	Belt Line, Hamilton	3·52	
			83·67
Trans-Canada	From Roberval to Port Simpson across the continent, 60 miles from Roberval, westward under construction.		
Victoria and Sidney	Victoria to Sidney, B.C.		16·26
Victoria Terminal Railway and Ferry	Cloverdale to Port Guichon and 1·14 miles in City of Victoria		18·40
Vancouver, Victoria and Eastern	Laurier to Grand Forks	14·40	
	Grand Forks Junction to Danville	2·10	
	Grand Forks to Granby Smelter	4 75	
	Copper Junction to Phœnix, B.C	24·62	
			45·87
Vancouver, Westminster and Yukon	Vancouver to New Westminster		14·81
Wellington Colliery	Union Bay to Cumberland		10·75
Washington County Railway (Princeton Branch) of U.S.	Milltown to International boundary, N.B.		5·10
York and Carleton	Junction with Canada Eastern Ry. at Cross Creek Station to Stanley, N.B.		5·75
	Total, mileage		21,518·13

No. 1.—Summary Statement of Capital, Steam Railways, Year ending June 30, 1904.

Name of l
Témiscouata.. .
Tilsonburg, Lake Toronto, Hamilt including Bran and Lake Erie.
Trans-Canada ...
Victoria and Sidn Victoria Termina Ferry .....
Vancouver, Victo
Vancouver, We Yukon. ..... Wellington Collie Washington Co (Princeton Bran York and Carleto

No. 2.—Statement of the different descriptions of Rolling Stock for the year ended June 30, 1906.

Name of
Témiscouata.. .
Tilsonburg, Lake
Toronto, Hamilt including Bran and Lake Erie.
Trans-Canada ...
Victoria and Sidr
Victoria Termin Ferry ....
Vancouver, Victo
Vancouver, We Yukon. .....
Wellington Collie
Washington Co (Princeton Brai
York and Carleto

No. 3.—Summary Statement of Characteristics of

Number.	Name of Railway.	Length of Line.				Length of Siding.	Length of Double Track.	Weight per Yard.	
		Completed. (Rails laid.)	Under Construction.	Iron Rails.	Steel Rails.			Iron Rails.	Steel Rails
		Miles.	Miles.	Mls.	Miles.	Miles.	Miles.	Lbs.	Lbs.
1	Albert Southern 16·00 Harvey Branch 3·00	19·00			19·00				
2	Alberta Railway and Irrigation Co.	113·72			113·72	13·21			56
3	Algoma Central and Hudson Bay	95·50	104·00		95·50	56·00			56 to 80
4	Atlantic & Lake Superior, comprising— Baie des Chaleurs 100·00 Great Eastern 23·00 Ottawa Valley 7·00	130·00			130·00	1·50			56
5	Atlantic Quebec & Western		102·00						
6	Bay of Quinté Ry., including Kingston, Napanee & Western	93·37			93·37	11·30			56 to 70
7	Bedlington and Nelson	15·30			15·30	1·28			56
8	Beersville Coal and Railway Co.	8·63			8·63	·62			56
9	British Yukon	90·32			90·32				45 to 56
10	Brockville, Westport & North Western.	45·00			45·00	2·00			56
11	Bruce Mines & Algoma	17·28			17·28	·45			56
12	Buctouche and Moncton.	32·00			32·00	2·50			56
13	Campbellford, Lake Ontario and Western		49·00						
14	Canada Atlantic, including Ottawa, Arnprior and Parry Sound 395·60 Leased lines— Central Counties 37·40 Pembroke Southern 20·90	453·90			453·90	87·10			56 to 80
15	Canada Coals and Railway Co.	12·00			12·00	3·50			56
16	Canada Southern 359·24 Leased lines— Sarnia, Chatham & Erie 7·00 Leamington & St. Clair 15·95	382 19			382·19	184·07	150·47		100 & 80
17	Canadian Government Railways— Intercolonial, exclusive of Windsor Branch, 32 miles, but including Drummond County and Canada Eastern Railway	1,451·66			1,451·66	374·61	4·07		56 to 110
18	Prince Edward Island	267·50			267·50	20·00			50 to 58
19	Canadian Northern, including Winnipeg Great Northern 40·00 Port Arthur, Duluth & West'n 85·00 Manitoba and South-eastern 107·90 Lake Manitoba Ry. & Canal Co.'s line 125·00 Ontario and Rainy River Ry. 164·00 Mantoba Railway (formerly Northern Pacific & Manitoba & Portage & North-western Rys.) operated by Canadian Northern	2,131 72 350·48			2,131·72 350·48	210·00			56 & 60
20	Canadian Pacific 5,169·00 Leased lines— Atlantic and North West 201·40 British Columbia Southern. 20·40 Calgary and Edmonton. 396·40 Cap de la Madeleine 2·30 Columbia and Western 157·10 Columbia and Kootenay 59·50 Credit Valley 175·70								

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Roads, &c., for the Year ended June 30, 1906.

Number of Ties per Mile.	Nature of Rail Fastenings.	Number of Grain Elevators.	Number of Highway Crossings at rail-level.		Number of Overhead Bridges.	Height of Overhead Bridges above rail level.	Number of Highway Crossings under Railway.	Number of Farm Crossings under Railway.	Number of Level Crossings of other Railways.	Number of Junctions with other Railways.	Number of Junctions with Branch Lines.	Radius of Sharpest Curve.	Number of Feet per Mile of heaviest gradient.	Gauge of Railway.	Number.
			Guarded.	Not guarded.		Feet.						Feet.		Ft.	
....	....	....	....	.....	....	.....	. .	.....	...	....	...	... .	....	....	1
2640	Angle-bars.....	8	....	18	....	..... .	....	...	....	2	1	573	79.2	4·8½	2
3000	Bonzano joints, angle-bars. .. .		1	24	2	16 0	....	....	1	1	1	478	132	4·8½	3
2640	Fishplates	....	....	.....	4	23·0	....	....	....	1	....	. ....	66	4·8½	4
....	....	....	....	.	....	.....	....	....	....	....	....	....	....	....	5
3000	Angle-bars..... . .	....	....	73	....	.....	2	....	4	4	1	955	65	4·8½	6
2640	Angle-bars.....	....	2	.....	....	.....	....	....	....	3	....	573·7	52·8	4·8½	7
2600	Fishplates and angle bolts..	....	....	3	....	.....	....	..	....	1	1	...	150	4·8½	8
2816	Angle-bars.....	....	....	.....	....	.....	....	....	....	1	....	359·3	205·9	3·00	9
2640	Fisher bridge joint.....	....	...	35	....	.....	....	17	....	2	....	716	58	4·8½	10
2640	Angle bars.....	....	1	.....	....	.....	....	....	1	1	....	637	79	4·8½	11
2600	Fishplates	....	....	24	....	.....	....	....	1	2	....	816	74	4·8½	12
....	....	....	....	.....	....	.....	....	....	....	....	....	....	....	....	13
2800	Angle-bars.....	2	8	304	7	14 to 24	15	23	11	6	6	955	66	4·8½	14
2600	Fishplates	....	....	7	....	.....	....	...	....	1	....	955	79	4·8½	15
2816	Angle splice	....	8	420	11	19 to 22	12	4	18	17	10	912	16	4·8½	16
2640 3520	} Bar, angle, fishplates....	2	17	688	34	16 to 35	32	31	11	30	24	694	81	4·8½	17
2640	Fish, angle and continuous.	....	....	1,018	2	17·00	5	2	....	....	....	396	90	3·6	18
2640	Angle-bars	230	2	1,900	....	.....	1	....	18	11	24	674	53	4·8½	19

No. 3.—Summary Statement of Characteristics of

Number.	Name of Railway.	Length of Line.				Length of Siding.	Length of Double Track.	Weight per Yard.	
		Completed. (Rails laid.)	Under Construction.	Iron Rails.	Steel Rails.			Iron Rails.	Steel Rails.
		Miles.	Miles.	Mls.	Miles.	Miles.	Miles.	Lbs.	Lbs.
	Can. Pac.—Leased lines—*Con.*								
	Fredericton	22·10							
	Great North-west Central	111·70							
	Guelph Junction	15·00							
	Kootenay and Arrowhead	33·20							
	Lindsay, Bobcaygeon and Pontypool	38·70							
	Manitoba South-western Colonization	215·70							
	Manitoba & North-western	294·60							
	Montreal and Ottawa	93·50							
20	Montreal and Lake Maskinongé	11·00	8,506·30	1,107·40	....	8,506·30	1,656·80	44·20	..... 52 to 100
	Nakusp and Slocan	36·50							
	New Brunswick	174·60							
	New Brunswick and Canada	117·60							
	Northern Colonization	23·50							
	Ontario and Quebec	474·40							
	Ottawa, Northern and Western	158·70							
	Shuswap and Okanagan	50·80							
	St. John Bridge and Railway Extension	2·00							
	St. John and Maine	91·80							
	St. Lawrence and Ottawa	58·30							
	St. Stephen and Milltown	4·60							
	Tillsonburg, Lake Erie and Pacific	33 40							
	Tobique Valley	27·50							
	Toronto, Grey and Bruce	189·10							
	Toronto, Hamilton & Buffalo	2·70							
	West Ontario Pacific	26·60							
	Vancouver and Lulu Island	16·90							
21	Cape Breton		31 00	.....	.....	31 00	2·00	.....	60 & 72
22	Caraquet		68 00	.....	.....	68·00	3·25	.....	50 & 56
23	Carillon and Grenville		13·00	.....	13·00	.....	.....	65	.....
24	Central Ontario		125·00	.....	.....	125·00	13·00	.....	56 & 70
	Leased line—								
	Marmora Ry. & Mining Co		9·60	.....	.....	9·60	.....	.....	56
25	Crow's Nest Southern		53·20	.....	.....	53·20	7·32	.....	60 & 68
26	Cumberland Ry. and Coal Co		32·00	.....	.....	32·00	16·00	.....	67 & 80
27	Dominion Atlantic, comprising—								
	Windsor and Annapolis	87·50							
	Cornwallis Valley	14·00							
	Yarmouth and Annapolis (Western Counties)	88·00	279·50	.....	.....	279·50	22·25	.....	56 to 80
	Windsor Branch, leased from Intercolonial	32·00							
	Midland of Nova Scotia	58 00							
28	Edmonton, Yukon and Pacific		4·50	.....	.....	4·50	·50	.....	60
29	Elgin and Havelock		28·00	.....	.....	28 00	2·00	.....	46 & 56
30	Esquimalt and Nanaimo		78·00	.....	.....	78·00	9·25	.....	50 to 60

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Roads, &c., for the Year ended June 30, 1906—*Continued.*

Number of Ties per Mile.	Nature of Rail Fastenings.	Number of Grain Elevators.	Number of Highway Crossings at rail level.		Number of Overhead Bridges.	Height of Overhead Bridges above rail level.	Number of Highway Crossings under Railway.	Number of Farm Crossings under Railway.	Number of Level Crossings of other Railways.	Number of Junctions with other Railways.	Number of Junctions with Branch Lines.	Radius of Sharpest Curve.	Number of Feet per Mile of heaviest gradient.	Gauge of Railway.	
			Guarded.	Not guarded.											Number.
						Ft.						Ft.		Ft.	
2640 3000	Bonzano joints, angle-bars and fishplates.	12	41	2,838	98	16 to 25	91	112	82	77	83	459	237	4·8½	20
2640	Angle-bars	....	....	14	....	.....	1	....	....	....	....	715	79	4·8½	21
2600	.....	....	....	12	....	.....	....	....	....	1	1	1,000	60	4·8½	22
1760	Chairs	....	1	8	1	16·0	....	....	....	....	....	1,910	100	5·6	23
2640	Angle-bars and fishplates	....	....	105	....	.....	....	7	3	4	1	955	105	4·8½	
2300	Fishplates	....	....	8	....	.....	....	....	....	....	....	717	72	4·8½	24
2816	Angle-bars	....	....	11	....	.....	1	....	....	....	3	573	105	4·8½	25
2240	Angle iron and bolts	....	....	18	....	.....	....	....	....	1	....	820	160	4·8½	26
2640	Angle fishplates	....	2	125	4	17 to 22	1	3	1	3	2	636	79	4·8½	27
2640	Angle-bars	....	....	.....	....	.....	....	....	....	....	....	.....	.....	.....	28
2640	Fishplates	....	....	25	....	.....	....	1	1	....	....	716	90	4·8½	29
2992	Angle-bars and fishplates	....	....	17	....	.....	3	....	2	1	....	521	100	4·8½	30

No. 3.—Summary Statement of Characteristics of

Number.	Name of Railway.	Length of Line.				Length of Siding.	Length of Double Track.	Weight per Yard.	
		Completed. (Rails laid.)	Under Construction.	Iron Rails.	Steel Rails.			Iron Rails.	Steel Rails.
		Miles.	Miles.	Mls.	Miles.	Miles.	Miles.	Lbs.	Lbs.
31	Grand Trunk	883·35							
	Great Western	561·80							
	Brantford, Norfolk and Port Burwell	34·39							
	Buffalo and Lake Huron	160·30							
	Grand Trunk, Georgian Bay and Lake Erie	175·62							
	Owen Sound Branch	12·40							
	London, Huron and Bruce	68·00							
	Waterloo Junction	10·25							
	South Norfolk	17·00							
	Wellington, Grey and Bruce	168·18							
	Northern	163·07							
	North Simcoe	33·00							
	Hamilton & North-western	172·23							
	Northern Pacific Junction	115·43	3,126·13			3,126·13	951·92	664·22	56-100
	Midland	166·06							
	Grand Junction	85·54							
	Toronto and Nipissing	85·00							
	Lake Simcoe Junction	26·00							
	Victoria	53·00							
	Whitby, Port Perry and Lindsay	46·00							
	Cobourg, Blairton and Marmora	15·00							
	Jacques Cartier Union	6·50							
	Montreal and Champlain Junction	61·73							
	Beauharnois Junction	6·28							
32	Great Northern Railway of Canada, (now Canadian Northern, Quebec), including Lower Laurentian, and Montford and Gatineau Colonization Ry	251·10	99·20		251·10	13·00			56 & 70
33	Gulf Shore	16·78			16·78	1·01			56
34	Halifax and South Western	245·30			245·30	22·00			56
	Halifax and Yarmouth, (now Halifax and South-western)								
35	Hampton and St. Martins	30·00			30·00	·50			67
36	Hereford including Dominion Line Co's Line	53·30			53·30	8·10			56
37	Indian River		18·10						
38	International of New Brunswick, (formerly Restigouche & Western)	29·00	81·00		29·00	1·10			56 to 67
39	Inverness Ry. & Coal Co	61·00			61·00	4·50			56
40	Irondale, Bancroft and Ottawa	48·00			48·00	2·50			56
41	James' Bay		312·50						
42	Kaslo and Slocan, B.C	31·08			31·08	2·25			45
43	Kent Northern 27·00 St. Louis and Richibucto 7·00	34·00			34·00				56
44	Kettle River Valley	3·86			3·86				60
45	Kingston and Pembroke	112·85		9·75	103·10	21·00		50·84	56
46	Klondyke Mines	15·00	30·00		15·00	1·00			52
k	L'Assomption—(road abandoned)	3·50			3·50				

Roads, &c., for the Year ended June 30, 1906—*Continued.*

Number of Ties per Mile.	Nature of Rail Fastenings.	Number of Grain Elevators.	Number of Highway Crossings at rail level.		Number of Overhead Bridges.	Height of Overhead Bridges above rail level.	Number of Highway Crossings under Railway.	Number of Farm Crossings under Railway.	Number of Level Crossings of other Railways.	Number of Junctions with other Railways.	Number of Junctions with Branch Lines.	Radius of Sharpest Curve.	Number of Feet per Mile of heaviest gradient.	Gauge of Railway.	Number.
			Guarded.	Not guarded.											
						Ft.						Ft.		Ft.	
2900 3200	Angle-bars and fishplates	10	97	3,036	225	16·0 to 40·0	142	128	71	69	83	717	66	4·8½	31
2640	Angle-bars and fishplates	1	3	130	1	21·0	3	10	13	10	4	573	104	4·8½	32
2600	Fishplates	....	....	19	....	.....	....	....	....	1	....	573	53	4·8½	33
2640	Angle-bars	....	....	243	1	23·0	4	8	2	2	3	478	87	4·8½	34
....	.....	....	....	....	....	.....	....	....	....	....	....	....	....	....	....
2640	Fishplates	....	....	18	....	.....	....	....	....	1	..	955	90	4·8½	35
3000	Angle-bars and fishplates	....	....	29	....	.....	....	....	2	3	....	955	66	4·8½	36
....	.....	....	....	....	....	.....	....	....	....	....	....	.....	....	....	37
2600	Angle-bars and fishplates	....	....	6	8	.....	....	....	....	1	....	573	79	4·8½	38
2640	Angle-bars	....	....	25	....	.....	....	....	....	1	....	614	78	4·8½	39
2640	Fishplates	....	....	16	....	.....	....	....	....	1	....	1,000	60	4·8½	40
....	.....	....	....	....	....	.....	....	....	....	....	....	.....	....	....	41
2640	Angle-bars and bolts	....	....	13	1	22·0	....	....	....	....	....	193	171	3·00	42
2432	Fishplates and bolts	....	....	5	....	.....	....	....	....	1	....	1,000	60	4·8½	43
2816	4-hole Angle-bars	....	....	....	....	.....	....	....	2	2	..	409	578	4·8½	44
2640	Angle-bars and fishplates	....	....	56	1	16·0	1	1	6	5	1	955	53.79	4·8½	45
2600	Standard angle-bars	....	....	2	1	18·0	....	....	....	....	....	229	154	3·00	46
....	.....	....	....	....	....	.....	....	....	....	....	....	.....	....	....	....

No. 3.—Summary Statement of Characteristics of

Number.	Name of Railway.	Length of Line.				Length of Siding.	Length of Double Track.	Weight per Yard.	
		Completed. (Rails laid.)	Under Construction.	Iron Rails.	Steel Rails.			Iron Rails.	Steel Rails.
		Miles.	Miles.	Mls.	Miles.	Miles.	Miles.	Lbs.	Lbs.
47	Lake Erie and Detroit River, including Erie and Huron...204·69 Leased lines—London & Port Stanley..... 24·00	228·69			228·69	46·59			56 to 85
48	Lenora and Mount Sicker	12·50			12·50				16 & 33
49	Liverpool and Milton	5·50			5·50	·50			56
50	Lotbinière and Mégantic	30·00			30·00	3·33			56
51	Maganetawan River	1·91			1·91				56 & 65
52	Manitoulin and North Shore	16·00			16·00				65 & 85
53	Massawippi Valley	35·46			35·46	8·01			60
	Midland of Nova Scotia (now inc. in Dominion Atlantic Ry.)								
	Middleton and Victoria Beach (now inc. in Halifax and South-western)								
54	Montreal & Atlantic..... 102·90 Lake Champlain & St. Lawrence Junction.... 60·50	163·40			163·40	25·97	6·65		56 to 70
55	Montreal and Province Line	58·60			58·60	2·53			56 & 60
56	Montreal and Vermont Junction	23·60			23·60	2·00			60 & 72
57	Morrissey, Fernie and Michel, B.C.	10·85			10·85	7·01			60 & 72
58	Nelson and Fort Sheppard	55·41			55·41	3·18			56
59	New Brunswick Coal and Ry. Co	58·00			58·00	2·00			52 & 56
60	New Brunswick & Prince Edward Island	36·00			36·00	1·50			56
61	New Brunswick Southern	82·50			82·50	2·50			50
62	New Westminster Southern	24·10			24·10	2·95			56
63	Nosbonsing and Nipissing	5·50			5·50	1·25			56
64	Nova Scotia Steel & Coal Co.	12·50			12·50	3·87			56
65	Orford Mountain	48·50		10·00	38·50	1·50		60	56
66	Ottawa and New York	56·90			56·90	4·60			65
67	Philipsburg Ry. and Quarry Co.	7·50			7·50				56
68	Pontiac and Renfrew	4·25			4·25	·75			56
69	Princeton Branch of Washington Co. Ry. U.S.A.	5·10			5·10				60
70	Qu'Appelle, Long Lake & Saskatchewan	253·96			253·96	14·50			56
71	Quebec Bridge and approaches		10·00						
72	Quebec Central	213·50			213·50	20·50			56 & 70
73	Quebec and Lake St. John	244·00			244·00	35·75			56 & 70
74	Quebec and New Brunswick		3·00						
75	Quebec Railway, Light and Power Co.	30·00			30·00	7·00	6·00		56 & 70
76	Quebec Southern, comprising the United Counties, East Richelieu Valley and South Shore Railways	143·75			143·75	9·00			56 & 80
77	Red Mountain	9·59			9·59	3·60			56 & 80
78	Rutland and Noyan	3·39			3·39				80
79	Salisbury and Harvey	45·00		29·00	16·00	6·00			56
80	Schomberg and Aurora	14·40			14·40	·40			56
81	Stanstead, Shefford and Chambly	43·00		12·00	31·00	3·23			60
82	St. Clair Tunnel, Yard and approaches	2·25			2·25	11·00			100
83	St. John Valley and Rivière du Loup	6·00	60·00		6·00				
84	St. Lawrence and Adirondack	46·12			46·12	7·09			72 & 80
85	Sydney & Louisburg (Dominion Coal Co.)	53·99			53·99	27·71			80
86	Temiscouata	113·00			113·00	3·00			56
87	Temiscaming and Northern Ontario	113·00	100·00		113·00	28·00			80
	Tilsonburg, Lake Erie and Pacific, (now Can. Pac. Ry)								

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Roads, &c., for the Year ended June 30, 1906—*Continued.*

Number of Ties per Mile.	Nature of Rail Fastenings.	Number of Grain Elevators.	Number of Highway Crossings at rail level.		Number of Overhead Bridges.	Height of Overhead Bridges above rail level.	Number of Highway Crossings under Railway.	Number of Farm Crossings under Railway.	Number of Level Crossings of other Railways.	Number of Junctions with other Railways.	Number of Junctions with Branch Lines.	Radius of Sharpest Curve.	Number of Feet per Mile of heaviest gradient.	Gauge of Railway.	Number.
			Guarded.	Not guarded.		Feet.						Ft.		Ft.	
3000	Angle-bars and fishplates		6	261	5	21·0		2	10	12		717	60	4·8½	47
3168	Fishplates								1	1		764	501	3·6	48
2400	"											100	100	4·8½	49
2640	Angle-bars			9					1	2		818	80	4·8½	50
2800	"									1		515	82	4·8½	51
3000	Bonzano joint & angle-bars									2		717	650	4·8½	52
2800	Fishplates		1	28	1	17·0	1			2	1	573	74	4·8½	53
3087	Angle-bars, fishp's & bz. jts			164	1	19·0	2		6	6	2	441	140	4·8½	54
3000	Fishplates			30					3	5		1,432	54	4·8½	55
3000	"			51						3		2,865	52	4·8½	56
2640	Angle-bars			3					1	4		410·3	170	4·8½	57
2640	"			7					2			573	132	4·8½	58
2640	Fishplates and bolts			32						1		816	74	4·8½	59
2400	Fishplates			26						1		750	66	4·8½	60
2992	"			15					3	3		573	85	4·8½	61
2640	Angle-bars							1		2		716	89·2	4·8½	62
3000	Fishplates			2					1	1		955	132	4·8½	63
2640	Bars with bolts			5						1	1	955	79	4·8½	64
2640				33						1		955	74	4·8½	65
2650	Angle-bars			74	1	20·0			3	4		1,910	39·60	4·8½	66
2816	Fishplates			7						2		955	51·5	4·8½	67
2640	"													4·8½	68
3000	Angle-bars													4·8½	69
2640	Angle-bars and fishplates	54		207						3	1	1,146	65	4·8½	70
															71
2640	Fish and angle-plates			115			3		2	7	2	882	76	4·8½	72
2640	Angle-bars and fishplates	1	2	57			3	9		2	4	717	105	4·8½	73
															74
2640	Plain and angle fishplates			11					2	2		1,433	42	4·8½	75
2640	Fishplates and angle-bars			85					5	9		717	40	4·8½	76
2640	Angle-bars			9						2		287	184	4·8½	77
3000	"			3					1	1		637	15	4·8½	78
2600	Fishplates			27			2		1			717	80	4·8½	79
2650	6 Bolt angle-bars			15				2	1	1		573	10	4·8½	80
2640	Fishplates			42	1	18·0			3	4		1,910	60	4·8½	81
														4·8½	82
															83
2816	Angle-bars			32	1	20·0	2		2	3		478	63	4·8½	84
2300	Angle-bars and bolts		1	30	2	18·0	3		5	1		955	70	4·8½	85
2640	Fishplates			43			2	3	1	2		820	79	4·8½	86
2640	Angle-bars		1	21	1	22·0						955	66	4·8½	87

No. 3.—Summary Statement of Characteristics of

Number.	Name of Railway.	Length of Line.				Length of Siding.	Length of Double Track.	Weight per Yard.	
		Completed. (Rails laid.)	Under Construction.	Iron Rails.	Steel Rails.			Iron Rails.	Steel Rails.
		Miles.	Miles.	Mls.	Miles.	Miles.	Miles.	Lbs.	Lbs.
88	Thousand Islands	6·33			6·33	1·00			56 & 60
89	Toronto, Hamilton and Buffalo	83·67			83·67	30·77	2·84		56 to 80
90	Trans-Canada		60·00						
91	Vancouver, Victoria and Eastern	45·87			45·87	10·52			60
92	Vancouver, Westminster and Yukon	14·81			14·81	4·93			60
93	Victoria Terminal Ry. and Ferry Co.	18·40			18·40	1·50			56 & 60
94	Victoria and Sidney, B.C.	16·26			16·26	1·20			50
95	Wellington Colliery Co.	10·75			10·75	9·25			50
96	York and Carleton	5·75	4·50		5·75	·10			56
	Totals	21,518·13	2,140·70	73·75	21,444·38	4,085·48	878·45		

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Roads, &c., for the Year ended June 30, 1906—*Concluded.*

Number of Ties per Mile.	Nature of Rail Fastenings.	Number of Grain Elevators.	Number of Highway Crossings at rail level.		Number of Overhead Bridges.	Height of Overhead Bridges above rail level.	Number of Highway Crossings under Railway.	Number of Farm Crossings under Railway.	Number of Level Crossings of other Railways.	Number of Junctions with other Railways.	Number of Junctions with Branch Lines.	Radius of Sharpest Curve.	Number of Feet per Mile of heaviest gradient.	Gauge of Railway.	Number.
			Guarded.	Not guarded.		Feet.						Ft.		Ft.	
3000	Angle-bars	....	....	8	....	....	....	....	....	1	....	410	84	4·8½	88
3000	"	....	7	123	11	22	3	30	6	7	2	675	79	4·8½	89
....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	90
2816	Angle-bars	....	....	27	2	22	....	....	1	2	3	359	158	4·8½	91
2640	"	....	2	15	1	22	..	....	3	2	....	819	134	4·8½	92
3168	"	....	....	31	....	.....	....	..	1	2	...	573	26	4·8½	93
2464	Fishplates	....	...	13	....	.....	1	....	....	1	....	637	106	4·8½	94
2992	"	....	....	..	3	.....	....	....	..	....	....	.....	..	4·8½	95
2600	Side plates and bolts	...	....	8	....	.....	....	....	....	1	....	716	64	4·8½	96
		320	205	12,962	431	.....	336	394	315	374	265	....	...	...	

No. 4.—Summary Statement of the Operations of the

Number.	Name of Railway.	Mileage.	Train Mileage.			
			Passenger Trains.	Freight Trains.	Mixed Trains.	Total Train Mileage.
1	Alberta Railway and Coal Co. (*See* note).					
2	Algoma Central and Hudson Bay	95·50	5,346		40,587	45,933
3	Atlantic and Lake Superior, comprising—					
	Baie des Chaleurs 100·00					
	Great Eastern, not under traffic 23·00	100 00			69,600	69,600
	Ottawa Valley, not under traffic 7·00					
4	Alberta Railway and Irrigation Co	113 72		22,405	42,947	65,352
5	Bay of Quinté Railway, including—					
	Kingston, Napanee & Western	93·37			224,552	224,552
6	Bedlington and Nelson	15·30	52		2,856	2,908
7	Beersville Coal & Railway Co	8·63			6,200	6,200
8	British Yukon	90·32	630	16,770	54,746	66,146
9	Brockville, Westport and Northwestern	45·00	30,010	180	28.170	58,360
10	Bruce Mines and Algoma. (*See* note).					
11	Buctouche and Moncton	32·00			20,544	20,544
12	Canada Atlantic, including Ottawa, Arnprior and Parry Sound 395·60	453·90	594,310	876,746	84,344	1,555,400
	Leased lines—Central Counties 37·40					
	Pembroke Southern 20·90					
13	Canada Coals & Ry. Co	12·00	8,970		13.480	22,450
14	Canada Eastern (included in Intercolonial system)					
15	Canada Southern 359·24					
	Leased lines—	382·19	1,612,708	1,960,181		3,572,889
	Sarnia, Chatham and Erie 7·00					
	Leamington and St. Clair 15·95					
16	Canadian Government Railways—					
	Intercolonial, exclusive of Windsor Branch, 32 miles, but including Drummond County and Canada Eastern Ry.	1,451·66	2,694,236	†4,730,595		7,424,831
17	Prince Edward Island	261·30	119,751	†193,750		313,501
18	Canadian Northern, including—					
	Winnipeg Great Northern 40·00					
	Port Arthur, Duluth and Western 85·00					
	Manitoba & South Eastern 107·90					
	Lake Manitoba Railway and Canal Co.'s line 125·00	2,131·72	968,177	1,794,243	242,710	3,005,130
	Ontario and Rainy River 164·60					
	Manitoba Ry. (formerly Northern Pacific and Manitoba, and Portage and Western Rys.) operated by Canadian Northern	350·48				
19	Canadian Pacific Ry 5,169·00					
	Leased lines—					
	Atlantic and North-west 201·40					
	British Columbia Southern 20·40					
	Calgary and Edmonton 396·40					
	Cap de la Madeleine 2·30					
	Columbia and Kootenay 59·50					
	Columbia and Western 157·10					
	Credit Valley 175·70					
	Fredericton 22·10					
	Great North-west Central 111·70					
	Guelph Junction 15·00					
	Kootenay and Arrowhead 33·20					
	Lindsay, Bobcaygeon and Pontypool 38·70	8,506·30	10,919,712	16,678,716	1,322,541	28,920,969
	Manitoba South-western Colonization 215·70					
	Manitoba and North-western 294·60					

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Year and Mileage for the Year ended June 30, 1906.

Engine Mileage.	Total Number of Passengers Carried.	Tons of Freight of 2,000 lbs. Handled.	Average Rate of Speed of Passenger Trains—Miles per Hour.	Average Rate of Speed of Freight Trains—Miles per Hour.	Average Weight of Passenger Trains in Motion—Tons.	Average Weight of Freight Trains in Motion—Tons.	Number.	Remarks.
.....	.....	.....	.....	.....	.....	.....	1	Now, Alberta Railway and Irrigation Co.
327,483	16,666	426,499	20	15	85	439	2	
69,600	15,145	25,681	.....	.....	125	.....	3	
127,641	18,709	105,774	.....	18	.....	500	4	
224,552	101,661	311,164	.....	.....	.....	.....	5	
2,950	1,399	7,625	.....	.....	.....	.....	6	
6,380	1,156	5,257	30	25	.....	300	7	
73,625	10,881	32,118	18	16	.....	.....	8	
58,360	69,110	21,312	30	21	155	210	9	
.....	.....	.....	.....	.....	.....	.....	10	Road not in operation.
21,327	15,667	24,225	.....	16	.....	†250	11	†Combination.
1,888,619	463,155	1,549,208	35	15	172	695	12	
29,768	11,328	102,248	20	20	250	270	13	
.....	.....	.....	.....	.....	.....	.....	14	
4,958,412	964,555	5,477,747	37	17	*	*	15	*No record.
9,304,511	2,737,160	3,156,189	30	15	260	500	16	†Including mixed trains.
431,678	256,092	87,162	22	16	.....	.....	17	†Including mixed trains.
3,570,934	564,341	1,727,902	28	15	325	412	18	
38,533,448	7,719,161	13,904,454	35	20	278	759	19	

No. 4.—Summary Statement of the Operations of the Year

Number.	Name of Railway.	Mileage.	Train Mileage.			
			Passenger Trains.	Freight Trains.	Mixed Trains.	Total Train Mileage.
	Can. Pac.—Leased lines—*Con.*—					
	Montreal and Ottawa	93·50				
	Montreal and Lake Maskinongé	11·00				
	Nakusp and Slocan	36·50				
	New Brunswick	174·60				
	New Brunswick & Canada	117·60				
	Northern Colonization	23·50				
	Ontario and Quebec	474·40				
	Ottawa, Northern and Western	158·70				
	Shuswap and Okanagan	50·80				
	St. John Bridge and Ry. Extension	2·00				
	St. John and Maine	91·80				
	St. Lawrence and Ottawa	58·30				
	St. Stephen and Milltown	4·60				
	Tobique Valley	27·50				
	Toronto, Grey and Bruce	189·10				
	Toronto, Hamilton and Buffalo	2·70				
	West Ontario Pacific	26·60				
	Vancouver & Lulu Island	16·90				
	Tilsonburg, Lake Erie and Pacific	33·40				
20	Cape Breton Ry.	31·00			19,556	19,556
21	Carillon and Grenville	13·00	3,400			3,400
22	Caraquet	68·00		†46,039		46,039
23	Campbellford, Lake Ontario and Western					
24	Central Ontario	125·00				
	Leased line—Marmora Ry. and Mining Co.	9·60	134·60	25,350	12,450	124,200	162,000
25	Crow's Nest Southern	53·20	32,678	31,950		64,628
26	Cumberland Railway and Coal Co.	32·00			732,260	732,260
27	Chateauguay and Northern. (Now in Canadian Northern System)					
28	Dominion Atlantic, comprising—					
	Windsor and Annapolis	87·50				
	Cornwallis Valley	14·00				
	Yarmouth and Annapolis (Western Counties)	88·00	279·50	279,328	165,809	187,621	632,758
	Windsor Branch, leased from Intercolonial Ry.	32·00				
	Midland of Nova Scotia	58·00				
29	Edmonton, Yukon and Pacific	4·50				
30	Elgin and Havelock	28·00			17,570	17,570
31	Esquimalt and Nanaimo	78·00	87,482	48,507		135,989
32	Fredericton and St. Mary's Ry. Bridge Co. (now included in Intercolonial system)					
33	Grand Trunk	883·35				
	Great Western	561·80				
	Brantford, Norfolk and Port Burwell	34·39				
	Buffalo and Lake Huron	160·30				
	Grand Trunk, Georgian Bay and Lake Erie	175·62				
	Owen Sound Branch	12·40				
	London, Huron and Bruce	68·00				
	Waterloo Junction	10·25				
	South Norfolk	17·00				
	Wellington, Grey and Bruce	168·18				
	Northern	163·07	3,111·13	8,339,130	10,439,548	647,232	19,425,910
	North Simcoe	33·00				

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and Mileage for the Year ended June 30, 1906—*Continued.*

Engine Mileage.	Total Number of Passengers Carried.	Tons of Freight of 2,000 lbs. Handled.	Rate of Speed of Passenger Trains—Miles per Hour.	Average Rate of Speed of Freight Trains—Miles per Hour.	Average Weight of Passenger Trains in Motion—Tons.	Average Weight of Freight Trains in Motion.	Number.	Remarks.
19,556	7,358	2,970	20	20	.....	.....	20	
3,900	5,254	102	30	.....	80	..	21	
46,039	10,629	22,655	.....	15	.....	.....	22	†Including mixed trains.
.....	.....	.....	.....	.....	.. ..	.. .	23	Not in operation.
181,404	128,330	211,413	25	20	250	800	24	
72,039	12,893	194,613	.....	... .	.....	. .	25	
843,860	34,935	485,799	.....	20	.... .	.....	26	
....	. .. .	.....	.....	.....	.....	.....	27	
632,758	450,130	313,790	30	15	100	200	28	
.....	....	....	.....	.....	.....	.....	29	Operated by the Canadian
17,570	8,811	11,737	15	15	.. .	.....	30	Northern Ry. Co.
173,668	145,975	157,390	25	20	132	289	31	
.....	.....	....	.....	.....	..	.....	32	
24,793,866	9,624,980	14,260,939	34	18	220	737	33	

No. 4.—Summary Statement of the Operations of the Year

Number.	Name of Railway.	Mileage.	Train Mileage.			
			Passenger Trains.	Freight Trains.	Mixed Trains.	Total Train Mileage.
	Grand Trunk—*Con.*					
	Hamilton and North-western. 172·23					
	Northern Pacific Junction .... 115·43					
	Midland..... 166·06					
	Grand Junction . ... 85·54					
	Toronto and Nipissing ..... 85·00					
	Lake Simcoe Junction ..... 26·00					
	Victoria..... . ... 53·00					
	Whitby, Port Perry & Lindsay 46·00					
	Jacques Cartier Union ..... 6·50					
	Montreal & Champlain Junction..... .... 61·73					
	Beauharnois Junction ..... 6·28					
34	Great Northern Railway of Canada, now Canadian Northern Quebec Railway, including Lower Laurentian and Montford & Gatineau Colonization Railway	251·10	111,021	107,943	93,715	312,679
35	Gulf Shore. (Operated by Caraquet Ry.)	16·78	.....	.....	.....	.....
36	Halifax and South-western.....	245·30	41,651	11,449	90,223	143,323
37	Halifax and Yarmouth. (Now Halifax & South-Western).....	.....	.....	.....	.....	.....
38	Hampton and St. Martins	30·00	.....	.....	15,900	15,900
39	Hereford, including Dom. Lime Co.'s line	53·30	24,697	16,789	31,912	73,398
40	Inverness Railway and Coal Co.....	61·00	.....	48,895	41,306	90,201
41	Irondale, Bancroft and Ottawa.....	48·00	550	3,200	31,300	35,050
42	Kaslo and Slocan, B.C.....	31·08	5,256	16,091	.....	21,347
43	Kent Northern (St. Louis and Richibucto).	27·00	.....	.....	18,000	18,000
44	Kettle River Valley	3·86	.....	.....	2,784	2,784
45	Kingston and Pembroke	112·85	65,864	5,654	92,895	164,413
46	Lake Erie and Detroit River, including Erie and Huron....204·69 Leased line— London and Port Stanley..... 24·00	228·69	355,250	484,541	246	840,037
47	Lenora & Mount Sicker (not in operation)	.....	.....	.....	.....	.....
48	Lotbinière and Mégantic.....	30·00	.....	3,000	19,000	22,000
49	Liverpool and Milton.....	5·50	.....	.....	7,400	7,400
50	Maganetawan River.	1·91	.....	.....	1,252	1,252
51	Manitoulin and North Shore....	16·00	.....	.....	14,621	14,621
52	Massawippi Valley.	35·46	75,911	79,420	24,020	179,351
53	Midland of Nova Scotia. (Now Dominion Atlantic)	.....	.....	.....	.....	.....
54	Montreal and Atlantic, formerly South-eastern..... .... 102·90 Lake Champlain and St. Lawrence Junction.. .... 60·50	163·40	93,247	154,050	159,683	406,980
55	Montreal and Province Line, formerly Montreal, Portland and Boston	58·60	21,817	16,665	48,613	87,095
56	Montreal and Vermont Junction..	23·60	66,932	69,791	72	136,795
57	Morrissey, Fernie and Michel, B.C.....	10·85	.....	.....	30,716	30,716
58	Nelson and Fort Sheppard.....	55·41	37,617	22,891	.....	60,508
59	New Brunswick Coal and Railway Co..	58·00	.....	.....	69,359	69,359
60	New Brunswick & Prince Edward Island.	36·00	4,234	12,592	22,716	39,542
61	New Brunswick Southern	82·50	.....	.....	61,398	61,398
62	New Westminster Southern.....	24·10	36,120	13,464	48	49,632
63	Nosbonsing and Nipissing.	5·50	.....	13,535	.....	13,535
64	Nova Scotia Steel and Coal Co.'s Ry.....	12·50	.....	.....	10,000	10,000
65	Orford Mountain...	48·50	27,888	1,560	10,416	39,864
66	Ottawa and New York.....	56·90	79,479	33,840	.....	113,319
67	Philipsburg Railway and Quarry Co.'s Ry.	7·50	200	1,750	.....	1,950
68	Princeton Branch, of Washington Co. Ry. (U.S.)..	5·10	3,320	935	5,970	10,225
69	Qu'Appelle, Long Lake & Saskatchewan.	253·96	158,936	204,706	.....	363,642

and Mileage, for the Year ended June 30, 1906—*Continued.*

Engine Mileage.	Total Number of Passengers Carried.	Tons of Freight of 2,000 lbs. Handled.	Average Rate of Speed of Passenger Trains—Miles per Hour.	Average Rate of Speed of Freight Trains—Miles per Hour.	Average Weight of Passenger Trains in Motion—Tons.	Average Weight of Freight Trains in Motion—Tons.	Number.	Remarks.
475,176	212,176	351,520	26	15	275	355	34	
							35	
195,947	145,403	121,747	25	20			36	
							37	
15,900	6,723	11,374		12 to 15			38	
109,846	25,039	168,978	26	15			39	
122,149	27,851	173,492	*20	14	*150	450	40	*Mixed trains.
36,200	13,014	37,359	25	18	130	180	41	
21,347	5,051	7,889	12	12			42	
18,250	8,775	95,504	18				43	
2,784	5,031	11,434	*15		*69		44	*Mixed trains.
164,413	52,173	129,940	30	20	200	350	45	
1,089,671	562,258	884,023	25	15	300	1,100	46	
							47	
29,520	11,198	62,509					48	
7,400	20,460	16,535		8		10	49	
1,252		11,543					50	
18,299	3,609	200,396	20	15		334	51	
249,115	156,623	435,011	25	12			52	
							53	
549,058	244,092	895,117	30	18	220	538	54	
94,537	117,200	92,633	30	12			55	
140,175	118,514	1,112,124	40	15			56	
30,716	263,425	554,221		10		400	57	
60,508		32,230	25	15			58	
84,989	13,940	38,731		16		300	59	
55,570	19,221	36,100	20	15			60	
61,398	14,347	20,423	20				61	
50,663	64,671	53,957					62	
14,885		27,075		20			63	
19,000	7,478	8,549		15		150	64	
39,864	9,231	40,415	25	20	50	250	65	
114,079	114,537	78,884	35	15			66	
1,950	200	1,926	25	18			67	
11,189	103,390	83,061					68	
457,099	113,526	277,656	23	10	325	500	69	

No. 4.—Summary Statement of the Operations of the Year

Number.	Name of Railway.	Mileage.	Train Mileage.			
			Passenger Trains.	Freight Trains.	Mixed Trains.	Total Train Mileage.
70	Quebec Central	213·50	209,383	176,156	312,186	697,725
71	Quebec and Lake St. John	244·00	201,820	129,495	36,624	367,939
72	Quebec Ry., Light and Power Co., formerly Quebec, Montmorency & Charlevoix	30·00			29,676	29,676
73	Quebec Southern, comprising the United Counties, East Richelieu Valley and South Shore Railways	143·75	55,994	19,006	64,800	139,800
74	Red Mountain	9·59	7,029	5,449		12,478
75	Rutland and Noyan	3·39	4,520	2,514		7,034
76	Salisbury and Harvey	45·00			28,170	28,170
77	Schomberg and Aurora	14·40	18,230	3,840		22,070
78	Stanstead, Shefford and Chambly	43·00	26,839	8,357	36,912	72,108
79	St. Clair Tunnel, Yard and Approaches	2·25				
80	St. Lawrence and Adirondack	46·12	145,497	68,452		213,949
81	St. Mary's River. (Now Alberta Ry. & Irrigation Co.)					
82	Sydney and Louisbourg, (Dom. Coal Co.)	53·99	33,231	20,272	160,421	213,924
83	Témiscouata	113·00	70,674	7,885	70,738	149,297
84	Temiskaming and Northern Ontario	113·00	87,986	78,384	11,852	178,222
85	Tilsonburg, Lake Erie and Pacific. (Now Can. Pac. Ry.)					
86	Thousand Islands	6·33			26,376	26,376
87	Toronto, Hamilton and Buffalo	83·67	214,969	122,124	13,363	350,456
88	Vancouver, Victoria and Eastern Railway and Navigation Co	45·87	27,406	46,234		73,640
89	Vancouver, Westminster and Yukon	14·81	22,400	9,450		31,850
90	Victoria and Sidney, B.C	16·26	13,468		11,393	24,861
91	Victoria Terminal Railway and Ferry Co.	18·40	942		3,258	4,200
92	Wellington Colliery Co., B.C	10·75		12,900	8,396	21,296
93	York and Carleton	5·75			7,220	7,220
	Totals	21,353·40	28,071,648	39,045,168	5,606,666	72,723,482

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and Mileage, for the Year ended June 30, 1906—*Concluded.*

Engine Mileage.	Total Number of Passengers Carried.	Tons of Freight of 2,000 lbs. Handled.	Average Rate of Speed of Passenger Trains—Miles per Hour.	Average Rate of Speed of Freight Trains—Miles per Hour.	Average Weight of Passenger Trains in Motion—Tons.	Average Weight of Freight Trains in Motion—Tons.	Number.	Remarks.
708,936	259,337	543,709	25	15	.....	.....	70	Also running powers over Intercolonial from Harlaka Jct. to Lévis, 5·00 miles.
582,363	301,729	345,001	28	15	150	550	71	
30,228	117,323	61,439	21	18	220	250	72	
140,856	....	....	30	18	80	725	73	
20,033	13,780	67,873	13	9	.....	.....	74	
7,034	10,462	259,896	.....	.....	.....	.....	75	
33,539	13,324	54,828	18	.....	.....	120	76	
22,070	....	24,865	20	12	125	..	77	
91,301	161,331	1,152,655	30	12	.....	.....	78	
103,476	....	....	.....	.....	.....	.....	79	
216,455	295,364	440,765	30	14	140	1,500	80	
.....	.....	.....	.....	.....	.....	.....	81	
544,043	49,491	3,770,961	22	12	200	1,600	82	
179,733	56,413	104,943	24	13	80	280	83	
178,889	235,446	199,724	30	15	.....	.....	84	
.....	.....	.....	.....	.....	.....	.....	85	
26,376	42,823	29,785	.....	.....	.....	.....	86	
350,456	358,545	1,076,362	35	20	150	800	87	
99,676	46,893	730,473	22	14	.....	.....	88	
31,850	75,140	36,297	25	20	200	250	89	
24,861	48,980	23,200	17	.....	130	190	90	
4,200	49,450	29,043	*15	.....	130	190	91	*Mixed trains.
21,296	4,664	304,374	20	20	.....	.....	92	
7,220	4,650	13,091	15	20	.....	.....	93	
94,180,788	27,989,782	57,966,713	.....	.....	.....	.....		

No. 5.—Summary Statement of Description of

Number.	Name of Railway.	Mileage.	Flour.		Grain.		Live
			Barrels.	Tons.	Bushels.	Tons.	No.
1	Alberta Railway and Coal Co. (now Alberta Ry. and Irrigation Co.)						
2	Algoma Central and Hudson Bay	95·59	611	69	58,159	1,073	709
3	Atlantic & Lake Superior, comprising— Baie des Chaleurs 100·00; Great Eastern, not under traffic 23·00; Ottawa Valley " " 7·00	100·00	9,113	1,260	10,126	170	244
4	Alberta Ry. & Irrigation Co	113·72	67,920	6,792	370,700	7,414	7,466
5	Bay of Quinté, including— Kingston, Napanee & Western	93·37	22,710	2,271	95,237	2,619	7,653
6	Bedlington and Nelson	15·30			3,937	63	
7	Beersville Coal & Railway Co	8·63		2		6	
8	British Yukon	90·32	10,033	1,003	245,675	3,930	8,329
9	Brockville, Westport & North-western	45·00	20,270	2,027	99,200	2,975	10,115
10	Bruce Mines and Algoma (not in oper.)						
11	Buctouche and Moncton	32·00					
12	Canada Atlantic, including Ottawa, Arnprior & Parry Sound 395·60; Leased lines— Central Counties 37·40; Pembroke Southern 20·90	453·90	837,200	83,720	14,899,640	372,491	54,768
13	Canada Coals & Ry. Co	12·00	1,750	175	7,836	146	5
14	Canada Eastern (now included in Intercolonial system).						
15	Canada Southern 359·24; Leased lines— Sarnia, Chatham & Erie 7·00; Leamington & St. Clair 15·95	382·19	1,372,770	148,095	34,766,707	706,944	1,034,509
16	Canadian Government Railways— Intercolonial, exclusive of Windsor Branch, 32 miles, but including Drummond County and Canada Eastern Ry	1,451·66	1,882,630	188,263	2,924,226	64,423	106,589
17	Prince Edward Island	261·30	21,324	2,132	822,616	14,135	19,204
18	Canadian Northern, including— Winnipeg Great Northern 40·00; Port Arthur, Duluth and Western Ry 85·00; Manitoba South Eastern 107·90; Lake Manitoba Ry. and Canal Co's Line 125·00; Ontario and Rainy River 164·00; Manitoba (formerly Northern Pacific and Manitoba and Portage and North Western Rys.) operated by Canadian Northern Ry 350·48	2,131·72	246,846	24,191	16,192,502	458,569	51,588
19	Canadian Pacific Ry. 5,169·00; Leased lines— Atlantic & North West 201·40; Brit. Columbia Southern 20·40; Calgary & Edmonton 396.40; Cap de la Madeleine 2·30; Columbia & Kootenay 59·50; Columbia & Western 157.10; Credit Valley 175·70; Fredericton 22·10; Great North West Central 111·70; Guelph Junction 15·00; Kootenay & Arrowhead 33·20; Lindsay, Bobcaygeon and Pontypool 38·70; Manitoba & South-western Colonization 215·70	8,506·30	5,992,995	599,299	82,182,175	2,212,677	1,426,646

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Freight carried for the Year ended June 30, 1906.

Stock.	Lumber of all kinds, ft. B.M.		Coal and other Fuel.		Manufactured Goods.	All other Articles.	Total Weight Carried.	Number.	Remarks.
Tons.	Feet.	Tons.	Cords.	Tons.	Tons.	Tons.	Tons.		
.....	.....	.....	.....	.....	.....	.....	.....	1	
645	1,322,205	2,541	42,405	60,635	4,068	357,468	426,499	2	
395	6,018,714	9,171	39	46	4,366	10,273	25,681	3	
2,626	3,417,300	5,126	.....	27,253	2,987	53,576	105,774	4	
3,061	34,996,572	62,994	25,163	125,514	105,879	8,826	311,164	5	
11	210,000	315	.....	6,512	724	.....	7,625	6	
.....	.....	1,000	.....	4,225	20	4	5,257	7	
2,865	1,560,933	2,341	.....	252	14,394	7,333	32,118	8	
2,173	741,000	1,109	.....	1,183	8,520	3,325	21,312	9	
.....	.....	.....	.....	.....	.....	.....	.....	10	Not in operation.
.....	51,461,000	6,553	4,001	8,844	3,064	5,764	24,225	11	
13,692	225,845,500	451,691	.....	182,420	225,320	219,874	1,549,208	12	
3	618,025	881	.....	97,202	233	3,608	102,248	13	
								14	
284,843	118,010,542	190,208	4,783	7,269	1,560,916	2,579,472	5,477,747	15	
19,207	572,878,600	794,765	.....	712,496	866,955	510,080	3,156,189	16	
2,607	5,410,758	7,433	.....	.....	.....	60,855	87,162	17	
12,960	171,636,000	257,456	.....	355,021	250,156	368,649	1,727,002	18	
421,589	1,790,022,360	2,365,237	.....	1,727,046	3,811,113	2,767,493	13,904,454	19	

No. 5.—Summary Statement of Description of

Number.	Name of Railway.	Mileage.	Flour.		Grain.		Live
			Barrels.	Tons.	Bushels.	Tons.	No.
	Can. Pac.—Leased lines—*Con.*						
	Manitoba & North-west'rn 294·60						
	Montreal and Ottawa.... 93·50						
	Montreal & L. Maskinongé 11·00						
	Nakusp and Slocan. .... 36·50						
	New Brunswick..... 174·60						
	New Brunswick & Canada. 117·60						
	Tillsonburg, L. Erie & Pac. 33·40						
	Northern Colonization ... 23·50						
	Ontario and Quebec..... 474·40						
	Ottawa North'n & West'rn. 158·70						
	Shuswap and Okanagan.. 50·80						
	St. John Bridge and Railway Extension..... 2·00						
	St. John and Maine . . 91·80						
	St. Lawrence and Ottawa. 58·30						
	St. Stephen and Milltown 4·60						
	Tobique Valley..... .... 27·50						
	Toronto, Grey and Bruce. 189·10						
	Toronto, Hamilton & Buffalo..... .... 2·70						
	West Ontario Pacific..... 26·60						
	Vancouver & Lulu Island. 16·90						
20	Cape Breton Ry	31·00	3,295	329	....	..... .	5
21	Carillon and Grenville.....	13·00	..... .	.....	... .	.....	.....
22	Caraquet	68·00	.....	1,125	....	750	.....
23	Campbellford, Lake Ontario & West'n	.....	.....	.....	.....	.....	.....
24	Central Ontario. .....125·00						
	Leased line—Marmora Ry. and Mining Co .... 9·60	134·60	... .	2,178	.....	5,437	.....
25	Crow's Nest Southern.....	53·20	.....	25	44,640	718	.....
26	Chateauguay and Northern (now Canadian Northern (Quebec)...	.....	.....	.....	.....	.....	.....
27	Cumberland Ry. and Coal Co...	32·00	10,342	1,034	53,192	930	20
28	Dominion Atlantic, comprising—						
	Windsor and Annapolis..... 87·50						
	Cornwallis Valley..... 14·00						
	Yarmouth and Annapolis (Western Counties)..... 88·00	279·50	159,474	15,947	209,160	6,275	8,576
	Windsor Branch, leased from Intercolonial.... ..... 32·00						
	Midland & Nova Scotia..... 58·00						
29	Edmonton, Yukon and Pacific..... ..	4·50	.....	.....	.....	.....	.....
30	Elgin and Havelock.....	28·00	4,170	417	5,882	100	300
31	Esquimalt and Nanaimo..... ...	78·00	25,486	2,548	96,608	1,945	5,896
32	Fredericton and St. Mary's Railway Bridge Co. (now included in Intercolonial system).						
33	Grand Trunk ..... 883·35						
	Great Western..... ...561·80						
	Brantford, Norfolk and Port Burwell..... ..... 34·39						
	Buffalo and Lake Huron....160·30						
	Grand Trunk, Georgian Bay and Lake Erie.....175·62						
	Owen Sound Branch..... 12·40						
	London, Huron and Bruce.. 68·00						
	Waterloo Junction..... .. 10·25						
	South Norfolk.... .. . . 17·00						
	Wellington, Grey and Bruce. 168·18						
	Northern ..... . 163·07						
	North Simcoe..... ..... 33·00	3,111·13	3,921,940	392,194	70,507,760	1,762,694	2,713,800

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Freight carried for the Year ended June 30, 1906—*Continued.*

Stock.	Lumber of all kinds, ft. B.M.		Coal and other Fuel.		Manufactured Goods.	All other Articles.	Total Weight Carried.	Number.	Remarks.
Tons.	Feet.	Tons.	Cords.	Tons.	Tons.	Tons.	Tons.		
4	....	684	.....	811	.....	1,142	2,970	20	
20	.....	.....	.....	... .	22	60	102	21	
350	.....	17,550	.....	650	720	1,510	22,655	22	
.....	....	.....	.....	.....	.....	.....	... .	23	Not in operation.
4,288	.....	30,261	.....	92,062	74,330	2,857	211,413	24	
429	4,210,000	6,315	.. ..	181,773	2,386	2,967	194,613	25	
.....	....	.....	.....	.....	.....	.....	. .....	26	
10	.....	21,980	.....	451,222	10,623	.. ..	485,799	27	
2,337	46,868,430	70,303	.....	34,849	50,438	133,641	313,790	28	
.....	.....	.....	.....	... ...	.....	....	.....	29	
150	4,876,200	8,127	128	255	1,751	937	11,737	30	
1,297	38,888,693	49,370	11,526	17,302	42,418	42,510	157,390	31	
								32	
542,760	648,562,000	1,297,124	.....	4,454,900	2,310,645	3,500,622	14,260,939	33	

No. 5.—Summary Statement of Description of

Number.	Name of Railway.	Mileage.	Flour.		Grain.		Live
			Barrels.	Tons.	Bushels.	Tons.	No.
	Grand Trunk—*Con.*						
	Hamilton & North-western	172·23					
	Northern Pacific Junction	115·43					
	Midland	166·06					
	Grand Junction	85·54					
	Toronto and Nipissing	85·00					
	Lake Simcoe Junction	26·00					
	Victoria	53·00					
	Whitby, Port Perry and Lindsay	46·00					
	Jacques Cartier Union	6·50					
	Montreal and Champlain Junction	61·73					
	Beauharnois Junction	6·28					
34	Great Northern Ry. of Canada (now Canadian Northern Quebec), including Lower Laurentian, Montford, Gatineau Colonization Railway	251·10	99,140	9,914	255,215	5,928	1,626
35	Gulf Shore (leased to Caraquet Ry.)	16·78					
36	Halifax & South-western (including Yarmouth Division), formerly Halifax & Yarmouth Ry. and Middleton and Victoria Beach Ry.	245·30	48,551	4,855	50,278	866	1,562
37	Halifax and Yarmouth, now Halifax & South-western						
38	Hampton and St. Martin's	30·00					
39	Hereford (incl. Dom. Lime Co.'s line)	53·30	9,398	940	67,448	1,619	5,016
40	Inverness Ry. and Coal Co.	61·00	19,893	1,945	5,587	95	1,776
41	Irondale, Bancroft and Ottawa	48·00	5,000	490	1,500	375	812
42	Kaslo and Slocan, B.C.	31·08		50		35	
43	Kent Northern, St. Louis and Richibucto	27·00	6,600	660	1,800	31	82
44	Kettle River Valley	3·86	2,675	134	1,640	18	3,375
45	Kingston and Pembroke	112·85	13,540	1,327	48,900	1,467	658
46	Lake Erie and Detroit River, including Erie & Huron	204·69	228·69	120,580	12,058	1,546,966	46,409
	Leased line—London & Pt. Stanley	24·00					
47	Lenora & Mount Sicker (not in oper.)						
48	Liverpool and Milton	5·50					
49	Lotbinière and Mégantic	30·00		506		171	
50	Maganetawan River	1·91		393		52	
51	Manitoulin and North Shore	16·00	460	58			
52	Massawippi Valley	35·46	12,300	1,230	713,500	14,270	9,007
53	Midland of Nova Scotia (now in Dominion Atlantic)						
54	Montreal and Atlantic, (formerly South-Eastern)	102·90	163·40	1,291,202	129,120	3,739,768	84,699	28,918
	Lake Champlain and St. Lawrence Junction	60·50					
55	Montreal and Province Line (formerly Montreal, Portland and Boston)		58·60	14,830	1,483	65,205	1,863	2,164
56	Montreal and Vermont Junction		23·60	385,820	38,582	8,388,065	239,659	123,336
57	Morrissey, Fernie and Michel, B.C.		10·85					
58	Nelson and Fort Sheppard		55·41	760	76	16,582	456	3,998
59	New Brunswick Coal and Ry. Co.		58·00	1,960	196	21,853	371	
60	New Brunswick and Prince Edward Island		36·00	12,638	1,263	36,245	721	1,986
61	New Brunswick Southern		82·50	2,125	212	36,235	815	27
62	New Westminster Southern		24·10	13,918	341	83,686	1,697	
63	Nosbonsing and Nipissing		5·50					
64	Nova Scotia Steel & Coal Co.'s Ry		12·50	887	89	92,258	185	3

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Freight carried for the Year ended June 30, 1906—*Continued.*

Stock.	Lumber of all kinds, ft. B.M.		Coal and other Fuel.		Manufactured Goods.	All other Articles.	Total Weight Carried.	Number.	Remarks.
Tons.	Feet.	Tons.	Cords.	Tons.	Tons.	Tons.	Tons.		
813	29,690,000	44,535	.....	32,206	126,001	132,123	351,520	34	
.....	.....	.....	.....	.....	.....	.....	.....	35	
393	34,733,270	72,531	.....	21,288	9,748	12,066	121,747	36	
.....	.....	.....	.....	.....	.....	.....	.....	37	
.....	4,800,000	9,574	.....	.....	1,500	300	11,374	38	
550	96,318,756	144,478	.....	6,117	13,392	1,882	168,978	39	
207	1,143,500	2,287	.....	160,853	15	8,090	173,492	40	
203	3,155,000	5,063	.....	21,422	2,375	7,431	37,359	41	
.....	.....	115	.....	450	130	7,109	7,889	42	
39	20,000	225	.....	398	23,539	70,612	95,504	43	
150	2,264,000	2,230	750	750	119	8,033	11,434	44	
329	12,778,500	25,557	.....	14,620	72,576	14,064	129,940	45	
8,243	.....	212,033	.....	252,521	89,121	263,638	884,023	46	
.....	.....	.....	.....	.....	.....	.....	.....	47	
.....	.....	500	.....	.....	.....	16,035	16,535	48	
6	.....	25,878	.....	32,000	1,468	2,480	62,509	49	
.....	.....	10,177	.....	82	740	99	11,543	50	
.....	260,000	294	.....	15,577	463	184,004	200,396	51	
1,324	135,024,000	185,662	.....	15,330	42,096	175,099	435,011	52	
.....	.....	.....	.....	.....	.....	.....	.....	53	
7,185	75,793,633	104,195	.....	20,415	304,531	244,972	895,117	54	
541	14,163,156	21,266	.....	364	14,784	52,332	92,633	55	
30,834	43,728,894	65,659	.....	428	177,669	559,293	1,112,124	56	
.....	.....	.....	.....	528,329	.....	25,892	554,221	57	
998	3,643,782	5,460	.....	522	650	24,068	32,230	58	
.....	2,580,000	3,230	.....	33,152	.....	1,782	38,731	59	
240	7,720,000	18,560	.....	3,604	3,110	8,602	36,100	60	
27	6,684,000	11,152	.....	1,505	4,763	1,949	20,423	61	
30	9,105,000	13,658	.....	2,658	20,056	15,517	53,957	62	
.....	19,339,200	27,075	.....	.....	.....	.....	27,075	63	
2	4,300,000	6,106	1,285,120	643	222	1,302	8,549	64	

No. 5.—Summary Statement of Description of

Number.	Name of Railway.	Mileage.	Flour.		Grain.		Live
			Barrels.	Tons.	Bushels.	Tons.	No.
65	Orford Mountain	48·50	8,982	898	76,877	1,307	1,272
66	Ottawa and New York	56·90	10,730	1,073	75,040	1,876	5,476
67	Philipsburg Ry. and Quarry Co	7·50					
68	Princeton Branch of Washington Co. Ry. (U.S.)	5·10	1,624	162	18,243	438	132
69	Qu'Appelle, Long Lake and Saskatchewan	253·96	54,490	5,449	3,644,838	107,386	39,169
70	Quebec Central	213·50		21,231		1,235	
71	Quebec and Lake St. John	244·00	56,651	5,665	316,599	6,331	4,268
72	Quebec Ry. Light & Power Co. (form'ly Quebec, Montmorency & Charlevoix).	30·00	8,700	870	12,000	360	595
73	Quebec Southern, comprising the United Counties, East Richelieu Valley and South Shore Rys	143·75					
74	Red Mountain	9·59	150	15	4,430	124	1,210
75	Rutland and Noyan	3·39		16		143	
76	Salisbury and Harvey	45·00		421		716	
77	Schomberg and Aurora	14·40				24,000	
78	Stanstead, Shefford and Chambly	43·00	408,560	40,856	8,375,010	239,286	130,988
79	St. Clair Tunnel, Yard and Approaches	2·25					
80	St. Lawrence and Adirondack	46·12	18,220	1,822	71,880	1,797	2,476
81	St. Mary's River (now Alberta Ry. and Irrigation Co.)						
82	Sydney and Louisburg (Dominion Coal Co.)	53·99	3,370	337	2,670	80	161
83	Temiscouata	113·00	23,410	2,341	121,458	1,822	463
84	Temiscaming and Northern Ontario	113·00	15,804	1,565	196,000	3,332	5,805
85	Tillsonburg, Lake Erie & Pacific (now Can. Pac. Ry.)						
86	Thousand Islands	6·33	6,700	670	6,255	172	2,048
87	Toronto, Hamilton and Buffalo	83·67	45,829	4,580	747,788	16,572	54,732
88	Vancouver, Victoria and Eastern Ry. and Navigation Co.	45·87	4,310	430	10,254	282	3,028
89	Vancouver, Westminster and Yukon	14·81	2,457	246	35,576	653	25
90	Victoria and Sidney, B.C.	16·26	2,492	249	114,625	2,323	2,993
91	Victoria Terminal Ry. and Ferry Co	18·40	2,521	252	185,654	3,579	2,993
92	Wellington Colliery Co., B.C.	10·75		125		295	
93	York and Carleton	5·75	800	80	4,084	24	
	Totals	21,353·40	17,348,956	1,770,371	252,787,990	6,442,419	5,888,602

Freight carried for the Year ended June 30, 1906—*Concluded.*

Stock.	Lumber of all kinds, ft. B.M.		Coal and other Fuel.		Manufactured Goods.	All other Articles.	Total Weight Carried.	Number.	Remarks.
Tons.	Feet.	Tons.	Cords.	Tons.	Tons.	Tons.	Tons.		
182	10,204,500	11,769	4,416	6,757	5,360	14,142	40,415	65	
2,738	16,820,000	25,230	.....	16,129	18,334	13,504	78,884	66	
.....	.....	120	.....	53	.....	1,753	1,926	67	
54	14,240,448	21,361	.....	1,810	24,449	34,787	83,061	68	
23,579	44,491,500	57,578	8,997	13,496	47,343	22,825	277,656	69	
4,866	.....	101,249	.....	10,587	34,204	370,337	543,709	70	
1,185	66,716,000	102,640	52,808	126,260	30,547	72,373	345,001	71	
165	2,570,000	3,855	.....	7,440	8,895	39,854	61,439	72	
.....	.....	.....	.....	.....	.....	.....	.....	73	Not shown in return.
264	2,854,122	4,281	3,751	15,134	302	47,753	67,873	74	
53	.....	44,132	.....	8,266	14,377	192,909	259,896	75	
265	.....	25,076	.....	2,577	1,130	24,643	54,828	76	
360	.....	105	.....	400	.....	.....	24,865	77	
32,747	49,401,882	74,177	.....	730	193,268	571,591	1,152,655	78	
.....	.....	.....	.....	.....	.....	.....	.....	79	
1,238	63,290,000	94,935	.....	175,337	116,482	49,154	440,765	80	
.....	.....	.....	.....	.....	.....	.....	.....	81	
80	4,780,220	42,032	.....	3,570,115	.....	158,317	3,770,961	82	
232	43,735,000	72,249	5,260	10,520	5,847	11,932	104,943	83	
2,322	54,319,467	101,849	.....	15,938	11,098	63,620	199,724	84	
.....	.....	.....	.....	.....	.....	.....	.....	85	
819	2,405,142	4,209	.....	1,121	12,292	10,502	29,785	86	
9,034	13,826,136	22,553	2,215	3,293	350,332	669,998	1,076,362	87	
1,472	6,837,692	10,235	1,469	8,395	334	709,325	730,473	88	
17	6,568,000	10,877	.....	2,310	12,991	9,203	36,297	89	
255	1,035,000	1,551	3,594	6,340	5,818	6,664	23,200	90	
255	3,077,000	4,669	3,594	6,340	6,196	7,752	29,043	91	
51	.....	492	.....	301,356	1,946	109	304,374	92	
120	370,000	740	.....	225	11,562	340	13,091	93	
1,452,789	4,642,341,632	7,515,999	1,460,019	14,025,905	11,174,223	15,585,007	57,966,713		

No. 6.—Summary Statement of Earnings

Number.	Name of Railway.	Mileage.	Passenger Traffic.	Freight Traffic.	Mails and Express Freight.
			$ cts.	$ cts.	$ cts.
1	Alberta Railway and Coal Co. (now the Alberta Railway and Irrigation Co....	.....	.....	.....	.....
2	Algoma Central and Hudson Bay	95·50	19,043 30	153,936 03	.....
3	Atlantic and Lake Superior, comprising—				
	Baie des Chaleurs	100·00			
	Great Eastern, not under traffic	23·00	100·00	19,848 18	35,081 73	5,600 21
	Ottawa Valley "	7·00			
4	Alberta Railway and Irrigation Co.	113·72	38,740 29	105,394 69	3,115 49
5	Bay of Quinte Railway, including— Kingston, Napanee and Western	93 37	38,399 64	217,375 75	8,497 32
6	Bedlington and Nelson	15·30	646 46	3,707 44	.....
7	Beersville Railway and Coal Co	8·63	160 00	1,490 60	.....
8	British Yukon	90·32	68,438 19	240,130 32	8,847 27
9	Brockville, Westport and Northwestern	45·00	28,518 15	26,344 85	4,209 39
10	Bruce Mines and Algoma (not in operation)	.....	.....	.....	.....
11	Buctouche and Moncton	32·00	6,679 17	15,190 47	495 45
12	Canada Atlantic, including Ottawa, Arnprior and Parry Sound	395·60			
	Leased lines, Central Counties	37·40	453·90	375,489 10	1,506,562 88	37,545 47
	Pembroke Southern	20·90			
13	Canada Coals and Railway Co	12·00	3,527 88	37,658 75	622 38
14	Canada Eastern (now included in Intercolonial system)	.....	.....	.....	.....
15	Canada Southern	359·24			
	Leased, Sarnia, Chatham and Erie	7·00	382·19	1,510,408 13	5,396,979 23	423,864 97
	Leamington and St. Clair	15·95			
16	Canadian Government Railways—				
	Intercolonial, exclusive of Windsor Branch, 32 miles, but including Drummond County and Canada Eastern Ry	1,451·66	2,297,716 52	5,019,805 53	326,307 85
17	Prince Edward Island	261·30	114,053 82	121,621 58	21,056 17
18	Canadian Northern, including—				
	Winnipeg Great Northern	40·00			
	Port Arthur, Duluth and Western	85·00			
	Manitoba and South-eastern	107·90	2,131 72		
	Lake Manitoba Ry. and Canal Co.'s line	125·00		1,062,639 20	4,335,933 10	127,555 77
	Ontario and Rainy River	164·00			
	Manitoba (formerly Northern Pacific and Manitoba, and Portage and Western Rys., operated by Canadian Northern	350·48			
19	Canadian Pacific Ry	5,169·00			
	Leased lines—				
	Atlantic and North-west	201·40			
	British Columbia Southern	20·40			
	Calgary and Edmonton	396·40			
	Cap de la Madeleine	2·30			
	Columbia and Kootenay	59·50			
	Columbia and Western	157·10			
	Credit Valley	175·70			
	Fredericton	22·10			
	Great North-west Central	111·70			
	Guelph Junction	15·00			
	Kootenay and Arrowhead	33·20			
	Lindsay, Bobcaygeon and Pontypool	38·70	8,506·30	15,844,126 88	38,855,328 60	1,895,733 86
	Manitoba South-western	215·70			
	Manitoba and North-western	294·60			
	Montreal and Ottawa	93.50			
	Montreal and Lake Maskinonge	11·00			
	Nakusp and Slocan	36·50			
	New Brunswick	174·60			

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for the Year ended June 30, 1906.

Other Sources.	Total Gross Earnings.	Total Net Earnings.	Proportion of Earnings to Working Expenses.	Earnings per Train Mile.	Number.	Remarks.
$ cts.	$ cts.	$ cts.	p. c.	$ cts.		
.....	.....	.....	.....	.....	1	
153,216 55	326,195 88	85,850 41	136	7 10	2	
.....	60,530 12	2,572 59	104	0 87	3	
12,401 41	159,651 88	33,835 15	127	2 44	4	
3,198 44	267,471 15	85,332 69	146	1 18	5	
12 31	4,366 21	— 3,527 12	54	1 50	6	
....	1,650 60	— 2,858 54	36	0 26	7	
6,507 72	323,923 50	170,570 76	211	4 89	8	
246 60	59,318 99	29,570 14	199	1 62	9	
....	....	....	.....	.....	10	Not in operation during year.
....	22,365 09	37 41	100	1 08	11	
51,430 58	1,971,028 03	433,651 43	128	1 27	12	
1,271 45	43,080 46	12,428 72	140	1 91	13	
.....	.....	....	.....	....	14	
169,224 79	7,500,477 12	588,906 99	109	2 10	15	
.....	7,643,829 90	61,915 54	101	1 02	16	
539 00	257,270 57	— 36,982 59	87	0 82	17	
377,627 54	5,903,755 61	2,229,022 76	160	1 96	18	
4,161,693 06	60,756,882 40	22,909,591 76	160	2 10	19	

No. 6.—Summary Statement of Earnings

Number.	Name of Railway.	Mileage.	Passenger Traffic.	Freight Traffic.	Mails and Express Freight.
	Canadian Pacific—Leased lines—*Con.*		$ cts.	$ cts.	$ cts.
	New Brunswick and Canada	117·60			
	Northern Colonization	23·50			
	Ontario and Quebec	474·40			
	Ottawa, Northern and Western	158·70			
	Shuswap and Okanagan	50·80			
	St. John Bridge & Ry. Extension	2·00			
	St. John and Maine	91·80			
	St. Lawrence and Ottawa	58·30			
	St. Stephen and Milltown	4·60			
	Tobique Valley	27·50			
	Tilsonburg, Lake Erie & Pacific	33·40			
	Toronto, Grey and Bruce	189·10			
	Toronto, Hamilton and Buffalo	2·70			
	West Ontario Pacific	26·60			
	Vancouver and Lulu Island	16·90			
20	Cape Breton Ry		31·00	5,152 82	2,210 32	77 32
21	Carillon and Grenville		13·00	1,849 55	131 96	
22	Caraquet		68·00	10,822 04	31,718 94	2,447 00
23	Campbellford, Lake Ontario and Western					
24	Central Ontario	125·00				
	Leased lines—		134·60	61,821 73	162,513 08	11,128 33
	Marmora Ry. and Mining Co.	9·60				
25	Crow's Nest Southern		53·20	24,286 49	114,220 69	2,696 24
26	Cumberland Railway and Coal Co.		32·00	15,347 05	21,929 00	4,087 26
27	Chateauguay and Northern					
28	Dominion Atlantic, comprising—					
	Windsor and Annapolis	87·50				
	Cornwallis Valley	14·00				
	Yarmouth and Annapolis (Western Counties)	88·00	279·50	649,078 95	422,095 77	61,773 20
	Windsor Branch, leased from Intercolonial	32·00				
	Midland of Nova Scotia	58·00				
29	Edmonton, Yukon and Pacific		4·50			
30	Elgin and Havelock		28·00	2,555 60	7,647 72	736 31
31	Esquimalt and Nanaimo		78·00	151,490 33	217,627 95	9,542 88
32	Fredericton and St. Mary's Ry. Bridge Co. (now included in Intercolonial system)					
33	Grand Trunk	883·35				
	Great Western	561·80				
	Brantford, Norfolk and Port Burwell	34·39				
	Buffalo and Lake Huron	160·30				
	Grand Trunk, Georgian Bay and Lake Erie	175·62				
	Owen Sound Branch	12·40				
	London, Huron and Bruce	68·00				
	Waterloo Junction	10·25				
	South Norfolk	17·00				
	Wellington, Grey and Bruce	168·18				
	Northern	163·07				
	North Simcoe	33·00	3,111·13	8,458,202 99	17,936,068 77	1,319,357 49
	Hamilton and North-western	172·23				
	Northern Pacific Junction	115·43				
	Midland	166·06				
	Grand Junction	85·54				
	Toronto and Nipissing	85·00				
	Lake Simcoe Junction	26·00				
	Victoria	53·00				
	Whitby, Port Perry and Lindsay	46·00				
	Jacques Cartier Union	6·50				
	Montreal and Champlain Junction	61·73				
	Beauharnois Junction	6·28				

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for the Year ended June 30, 1906—*Continued*

Other Sources.	Total Gross Earnings.	Total Net Earnings.	Proportion of Earnings to Working Expenses.	Earnings per Train Mile.	Number.	Remarks.
$ cts.	$ cts.	$ cts.	p. c.	$ cts.		
200 40	7,640 86	— 7,052 10	53	0 39	20	
.....	1,981 51	— 2,245 20	47	0 58	21	
.....	44,987 98	— 3,662 90	92	0 97	22	
.....	.....	.....	.....	.....	23	Not in operation during year.
7,229 79	242,692 93	102,182 17	172	1 49	24	
968 80	142,172 22	51,695 53	156	2 20	25	
89,595 30	130,958 61	42,434 47	148	0 18	26	
.....	.....	.....	.....	.....	27	Included in Canadian Northern system.
....	1,132,947 92	249,400 42	129	1 79	28	
... .	.....	....	.....	.....	29	Included in Canadian Northern system.
40 00	10,979 63	954 16	109	0 62	30	
7,931 77	386,592 93	114,744 14	142	2 84	31	
.....	. . . .	.....	.....	.....	32	
736,793 68	28,450,422 93	8,658,634 78	143	1 46	33	

No. 6.—Summary Statement of Earnings

Number.	Name of Railway.	Mileage.	Passenger Traffic	Freight Traffic.	Mails and Express Freight.
			$ cts.	$ cts.	$ cts.
34	Great Northern Railway of Canada, now Canadian Northern Quebec Ry., including Lower Laurentian and Montford and Gatineau Colonization Railway	251·10	115,656 64	338,921 82	14,679 87
35	Gulf Shore (leased to Caraquet Railway)	16·78			
36	Halifax and South-western	245·30	123,871 65	103,748 40	7,260 57
37	Halifax and Yarmouth (now Halifax and South-western)				
38	Hampton and St. Martins	30·00	3,547 62	6,513 33	
39	Hereford (including Dom. Lime Co.'s Line)	53·30	16,303 24	52,039 06	1,288 08
40	Inverness Railway and Coal Co.	61·00	17,292 27	105,259 97	295 64
41	Irondale, Bancroft and Ottawa	48·00	7,773 40	23,947 88	1,202 77
42	Kaslo and Slocan, B.C.	31·08	5,450 40	13,257 00	1,323 13
43	Kent Northern and St. Louis and Richibucto	27·00	6,167 66	14,929 72	990 18
44	Kettle River Valley	3·86	277 40	1,122 45	
45	Kingston and Pembroke	112·85	44,679 61	141,218 49	10,242 65
46	Lake Erie and Detroit River, including Erie and Huron 204·69; Leased, London and Port Stanley 24·00	228·69	205,953 05	1,104,735 75	31,430 19
47	Lenora Mount Sicker. (Not in operation)				
48	Liverpool and Milton	5·50	1,036 52	5,602 90	
49	Lotbinière and Mégantic	30·00	4,541 96	28,633 21	
50	Maganetawan River	1·91		1,580 06	
51	Manitoulin and North Shore	16·00	1,557 60	46,115 41	
52	Massawippi Valley	35·46	64,464 88	109,004 99	3,841 50
53	Midland of Nova Scotia (now Dominion Atlantic)				
54	Montreal and Atlantic, formerly South-eastern 102·90; Lake Champlain and St. Lawrence Junction 60·50	163·40	141,900 38	422,924 79	13,108 45
55	Montreal and Province Line, formerly Montreal, Portland and Boston	58·69	38,801 17	40,998 84	4,535 86
56	Montreal and Vermont Junction	23·60	61,935 10	137,169 82	4,192 56
57	Morrissey, Fernie and Michel, B.C.	10·85	8,888 55	93,585 31	5 00
58	Nelson and Fort Sheppard	55·41	28,665 58	55,586 83	2,263 31
59	New Brunswick Coal and Railway Co	58·00	7,188 49	20,100 65	1,471 72
60	New Brunswick and Prince Edward Island	36·00	8,344 79	16,752 87	1,470 85
61	New Brunswick Southern	82·50	13,363 52	21,095 37	3,566 48
62	New Westminster Southern	24·10	51,341 88	13,150 57	2,194 81
63	Nosbonsing and Nipissing	5·50		46,414 08	
64	Nova Scotia Steel and Coal Co.'s Railway	12·50	1,683 63	3,140 92	300 00
65	Orford Mountain	48·50	4,926 02	21,804 68	525 84
66	Ottawa and New York	56·90	62,398 83	54,526 13	5,034 24
67	Philipsburg Railway and Quarry Co.	7·50	47 30	747 98	
68	Princeton Branch of Washington Co. Ry. (U.S.)	5·10	11,348 58	8,417 32	545 52
69	Qu'Appelle, Long Lake and Saskatchewan	253·96	276,587 35	420,017 72	21,312 57
70	Quebec Central	213·50	253,292 64	571,664 13	20,520 16
71	Quebec and Lake St. John	244·00	174,420 15	340,711 41	19,097 78
72	Quebec Railway, Light and Power Co. (formerly Quebec, Montmorency and Charlevoix)	30·00	12,848 29	33,907 90	
73	Quebec Southern, comprising United Counties, East Richelieu Valley and South Shore Rys.	143·75	54,571 58	85,403 58	5,052 75
74	Red Mountain	9·59	4,175 54	19,453 37	821 23
75	Rutland and Noyan	3·39	809 37	9,127 88	87 36
76	Salisbury and Harvey	45·00	8,427 03	19,500 02	2,545 12
77	Schomberg and Aurora	14·40	4,608 81	3,433 82	
78	Stanstead, Shefford and Chambly	43·00	24,852 94	53,888 14	2,699 93
79	St. Clair Tunnel, Yard and Approaches	2·25	56,294 00	248,698 00	1,222 50
80	St. Lawrence and Adirondack	46·12	121,440 72	151,453 49	5,486 76

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for the Year ended June 30, 1906.—*Continued.*

Other Sources.	Total Gross Earnings.	Total Net Earnings.	Proportion of Earnings to Working Expenses.	Earnings per Train Mile.	Number.	Remarks.
$ cts.	$ cts.	$ cts.	p. c.	$ cts.		
13,816 01	483,074 34	56,162 51	113	1 54	34	
.....	.....	.....	.....	.....	35	
3,733 38	238,614 09	36,894 36	118	1 66	36	
.....	.....	.....	.....	.....	37	
15 93	10,076 88	1,252 91	115	0 63	38	
85 97	69,716 35	— 19,310 34	78	0 95	39	
1,282 53	124,130 41	42,079 40	150	1 37	40	
.....	32,924 05	— 1,973 55	94	0 93	41	
65 34	20,095 87	— 14,747 30	57	0 94	42	
.....	22,087 56	8,075 06	157	1 22	43	
15 25	1,415 10	— 1,047 02	57	0 51	44	
8,898 55	205,039 30	42,893 68	126	1 24	45	
929 07	1,343,048 06	351,342 69	135	1 59	46	
.....	.....	.....	.....	.....	47	
.....	6,639 42	1,085 12	122	0 89	48	
.....	33,175 17	11,709 09	154	1 50	49	
.....	1,580 00	580 00	.....	.....	50	
183 19	47,856 20	17,916 36	159	3 27	51	
.....	177,311 37	44,893 92	134	0 98	52	
.....	.....	.....	.....	.....	53	
11,058 39	588,992 01	79,832 15	118	1 45	54	
1,781 18	86,117 05	17,578 50	125	0·99	55	
173 00	203,470 48	112,421 56	206	1 48	56	
96 82	102,575 68	18,895 78	123	3 34	57	
956 10	87,471 82	— 12,357 83	87	1 44	58	
15,492 50	44,253 36	2,224 73	105	0 63	59	
178 44	26,746 95	6,987 67	135	0 67	60	
1,842 55	39,867 92	— 1,277 62	97	0 65	61	
2,502 15	69,189 41	3,953 70	105	1 39	62	
.....	46,414 08	3,867 75	109	3 43	63	
64 00	5,188 55	— 7,910 70	39	0 51	64	
.....	27,256 54	— 3,929 82	88	0 69	65	
1,831 04	123,790 24	1,641 50	101	1 09	66	
.....	795 28	— 532 75	59	0 41	67	
.....	20,311 42	3,937 83	124	1 99	68	
565 00	718,482 64	216,086 81	143	1 97	69	
5,119 10	850,596 03	294,691 73	153	1 22	70	
29,628 65	563,857 99	175,795 55	145	1 53	71	
4,258 08	51,014 27	10,824 21	126	1 71	72	
15,741 72	160,769 63	13,893 84	109	1 15	73	
12,229 74	36,679 88	— 1,176 89	97	2 94	74	
.....	10,024 61	3,121 19	145	1 42	75	
234 54	30,706 71	961 89	101	1 09	76	
.....	8,042 63	— 4,336 96	65	0 36	77	
142 24	81,574 25	24,385 08	143	1 13	78	
15 00	306,229 50	150,907 84	197	.....	79	Earnings from haulage of cars and locomotives.
265 92	278,646 89	123,428 29	179	1 30	80	

No. 6—SUMMARY STATEMENT of Earnings

Number.	Name of Railway.	Mileage.	Passenger Traffic.	Freight Traffic.	Mails and Express Freight.
			$ cts.	$ cts.	$ cts.
81	St. Mary's River (now Alberta Railway and Irrigation Co)				
82	Sydney and Louisbourg (Dominion Coal Co.'s Ry)	53·99	18,753 97	360,904 36	2,462 50
83	Témiscouata	113·00	46,725 56	99,176 51	11,182 69
84	Temiskaming and Northern Ontario	113·00	198,209 11	192,942 59	12,772 18
85	Tilsonburg, Lake Erie and Pacific (now Can. Pacific R'y)				
86	Thousand Islands	6·33	7,660 35	21,204 15	3,104 62
87	Toronto, Hamilton and Buffalo	83·67	195,017 67	496,609 73	11,792 24
88	Vancouver, Victoria and Eastern Railway and Navigation Co	45·87	27,440 52	209,085 29	1,636 47
89	Vancouver, Westminster and Yukon	14·81	20,289 92	31,537 15	1,060 57
90	Victoria and Sydney, B.C	16·26	12,583 00	13,755 84	423 85
91	Victoria Terminal Railway and Ferry Co.	18·40	1,430 24	4,092 88	31 87
92	Wellington Colliery Co., B.C	10·75	2,204 10	3,009 82	243 00
93	York and Carleton	5·75	1,095 00	1,785 00	35 00
	Totals	21,353·40	33,392,188 04	81,433,115 07	4,510,649 00

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for the Year ended June 30, 1906—*Concluded.*

Other Sources.	Total Gross Earnings.	Total Net Earnings.	Proportion of Earnings to Working Expenses.	Earnings per Train Mile.	Number.	Remarks.
$ cts.	$ cts.	$ cts.	p. c.	$ cts.		
.....	.....	.....	.....	.....	81	
4,189 71	386,310 54	9,844 34	102	1 80	82	
....	157,084 76	25,623 39	119	1 05	83	
25,016 83	428,940 71	193,778 91	182	2 40	84	
....	.....	.....	.....	.....	85	
5,166 20	37,135 32	10,651 00	140	1 40	86	
38,058 99	741,478 63	281,873 34	161	2 12	87	
357 16	238,519 44	102,474 83	175	3 23	88	
760 46	53,648 10	– 9,392 80	85	1 68	89	
33 00	26,795 69	2,961 77	112	1 08	90	
.....	5,554 99	– 4,539 37	55	1 32	91	
.....	5,456 92	– 37,469 93	.....	.....	92	
.....	2,915 00	– 1,100 43	72	0 40	93	
5,986,912 92	125,322,865 03	38,193,430 54				

No. 7.—Summary Statement of Operating

Number.	Name of Railway.	Mileage.	Maintenance of Way, Buildings, &c.	Cost of Motive Power.
			$ cts.	$ cts.
1	Alberta Railway and Coal Co.			
2	Algoma Central and Hudson Bay	95·50	28,789 80	72,999 46
3	Atlantic and Lake Superior, comprising—			
	Baie des Chaleurs 100·00			
	Great Eastern, not under traffic 23·00	100·00	18,144 21	20,379 92
	Ottawa Valley " " 7·00			
4	Alberta Railway and Irrigation Co.	113·72	40,840 98	26,594 45
5	Bay of Quinté Railway, including Kingston, Napanee and Western	93·37	40,403 66	70,589 64
6	Bedlington and Nelson	15·30	539 37	1,032 31
7	Beersville Coal and Railway Co.	8.63	975 00	1,703 00
8	British Yukon	90·32	61,537 31	26,926 59
9	Brockville, Westport and North-western	45·00	2,327 99	11,627 16
10	Bruce Mines and Algoma. (See note)			
11	Buctouche and Moncton	32·00	9,400 10	5,369 21
12	Canada Atlantic, including Ottawa, Arnprior and Parry Sound 395·60			
	Leased lines: Central Counties 37·40	453·90	311,475 76	653,417 78
	Pembroke Southern 20·90			
13	Canada Coals and Railway Co.	12·00	8,047 65	12,196 93
14	Canada Eastern. (See note)			
15	Canada Southern			
	Leased lines: Leamington and St. Clair.	382·19	1,094,986 87	1,769,600 66
	Sarnia, Chatham and Erie			
16	Canadian Government Railways—			
	Intercolonial, exclusive of Windsor Branch, 32 miles, but including Drummond County and Canada Eastern Ry.	1,451·66	1,397,143 62	2,930,075 83
17	Prince Edward Island	261·30	74,801 87	99,983 92
18	Canadian Northern, including—			
	Winnipeg Great Northern 40·00			
	Port Arthur, Duluth and Western 85·00			
	Manitoba and South-eastern 107·90	2,131·72		
	Lake Manitoba Ry. and Canal Co.'s line 125·00			
	Ontario and Rainy River 164·00		807,692 24	1,389,022 05
	Manitoba (formerly Northern Pacific and Manitoba and Portage and North-western Rys.) operated by the Canadian Northern	350·48		
19	Canadian Pacific 5,169·00			
	Leased lines: Atlantic and North-west 201·40			
	British Columbia Southern 20·40			
	Calgary and Edmonton 396·40			
	Cap de la Madeleine 2·30			
	Columbia and Kootenay 59.50			
	Columbia and Western 157·10			
	Credit Valley 175·70			
	Fredericton 22·10			
	Great North-west Central 111·70			
	Guelph Junction 15·00			
	Kootenay and Arrowhead 33·20			
	Lindsay, Bobcaygeon and Pontypool 38·70			
	Tilsonburg, Lake Erie and Pacific 33 40			
	Manitoba and South-western Colonization 215·70	8,506·30	8,895,209 03	12,323,700 79
	Manitoba and North-western 294·60			
	Montreal and Ottawa 93·50			
	Montreal and Lake Maskinongé 11·00			
	Nakusp and Slocan 36·50			
	New Brunswick 174·60			
	New Brunswick and Canada 117·60			
	Northern Colonization 23·50			
	Ontario and Quebec 474·40			
	Ottawa, Northern and Western 158·70			
	Shuswap and Okanagan 50·80			
	St. John Bridge and Railway Extension 2·00			
	St. John and Maine 91·80			

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Expenses for the Year ended June 30, 1906.

Maintenance of Cars.	General and Operating Charges.	Total.	Cost of operating per train mile.	Number.	Remarks.
$ cts.	$ cts.	$ cts.	$ cts.		
.....	.....	.....	.....	1	Now the Alberta Railway and Irrigation Company.
26,178 82	112,377 39	240,345 47	5 23	2	
1,641 56	17,791 84	57,957 53	0 83	3	
4,375 45	54,005 85	125,816 73	1 92	4	
19,101 28	52,043 88	182,138 46	0 81	5	
48 32	6,273 33	7,893 33	2 71	6	
101 14	1,730 00	4,509 14	0 72	7	
8,016 92	56,871 92	153,352 74	2 32	8	
157 26	15,636 44	29,748 85	0 51	9	
.....	.....	.....	.....	10	This road not in operation during year.
734 55	6,823 82	22,327 68	1 08	11	
129,114 30	443,368 76	1,537,376 60	0 99	12	
4,968 30	5,438 86	30,651 74	1 36	13	
.....	.....	.....	.....	14	Now included in Intercolonial Railway System.
1,294,388 29	2,752,594 31	6,911,570 13	1 93	15	
651,178 98	2,603,515 93	7,581,914 36	1 02	16	
12,390 42	107,076 95	294,253 16	0 94	17	
214,671 63	1,263,346 93	3,674,732 85	1 22	18	
3,836,292 14	12,792,088 68	37,847,290 64	1 31	19	

No. 7.—Summary Statement of Operating Expenses

Number.	Name of Railway.	Mileage.	Maintenance of Way, Buildings, &c.	Cost of Motive Power.
			$ cts.	$ cts.
	Canadian Pacific—Leased lines—*Con.*			
	St. Lawrence and Ottawa	58·30		
	St. Stephen and Milltown	4·60		
	Tobique Valley	27·50		
	Toronto, Grey and Bruce	189·10		
	Toronto, Hamilton and Buffalo	2·70		
	West Ontario Pacific	26·60		
	Vancouver and Lulu Islands	16·90		
20	Cape Breton Railway	31·00	4,051 81	5,234 76
21	Carillon and Grenville	13·00	1,932 00	1,582 00
22	Caraquet	68·00	16,792 50	17,975 75
23	Campbellford, Lake Ontario and Western			
24	Chateauguay and Northern, included in Can. Nor. System.			
25	Central Ontario	125·00		
	Leased Line—Marmora Ry. and Mining Co.	9·60	134·60	48,931 87 48,687 12
26	Crow's Nest Southern	53·20	30,848 38	25,491 35
27	Cumberland Railway and Coal Company	32·00	25,713 15	21,804 15
28	Dominion Atlantic, comprising—			
	Windsor and Annapolis	87·50		
	Cornwallis Valley	14·00		
	Yarmouth and Annapolis (Western Counties)	88·00	279·50	164,289 04 333,738 88
	Windsor Branch, leased from Intercolonial	32·00		
	Midland of Nova Scotia	58·00		
29	Edmonton, Yukon and Pacific	4·50		
30	Elgin and Havelock	28·00	4,357 97	3,287 04
31	Esquimalt and Nanaimo	78·00	56,241 10	41,933 20
32	Fredericton and St. Mary's Railway Bridge Co.			
33	Grand Trunk	883·35		
	Great Western	561·80		
	Brantford, Norfolk and Port Burwell	34·39		
	Buffalo and Lake Huron	160·30		
	Grand Trunk, Georgian Bay and Lake Erie	175·62		
	Owen Sound Branch	12·40		
	London, Huron & Bruce	68 00		
	Waterloo Junction	10·25		
	South Norfolk	17·00		
	Wellington, Grey and Bruce	168·18		
	Northern	163·07	3,111·13	3,966,988 46 7,468,972 00
	North Simcoe	33·00		
	Hamilton and North-western	172·23		
	Northern and Pacific Junction	115·43		
	Midland	166·06		
	Grand Junction	85·54		
	Toronto and Nipissing	85·00		
	Lake Simcoe Junction	26·00		
	Victoria	53·00		
	Whitby, Port Perry and Lindsay	46·00		
	Jacques Cartier Union	6·50		
	Montreal and Champlain Junction	61.73		
	Beauharnois Junction	6·28		
34	Great Northern Ry. of Canada, now Canadian Northern, Quebec, including Lower Laurentian, Montford and Gatineau Colonization Railway	251·10	77,788 89	166,129 60
35	Gulf Shore (leased to Caraquet Railway)	16·78		
36	Halifax and South-western	245·30	61,298 42	58,726 36
37	Halifax and Yarmouth, now in Halifax and South-western.			
38	Hampton and St. Martins	30·00	3,391 48	3,314 51
39	Hereford (including Dominion Lime Co's line)	53·30	29,772 17	29,093 06
40	Inverness Ry. and Coal Co.	61·00	24,315 75	29,961 33
41	Irondale, Bancroft and Ottawa	48·00	13,976 83	13,337 85
42	Kaslo and Slocan, B.C.	31·08	18,507 93	9,346 09
43	Kent Northern and St Louis and Richibucto	27·00	7,275 00	3,865 00
44	Kettle River Vailey	3·86	655 34	822 02
45	Kingston and Pembroke	112·85	45,849 48	48,901 41
46	Lake Erie and Detroit River, including Erie and Huron			
	Leased line—London and Port Stanley	228·69	203,048 38	367,929 24

SESSIONAL PAPER No. 20b

for the Year ended June 30, 1906—*Continued.*

Maintenance of Cars.	General and Operating Charges.	Total.	Cost of operating per train mile.	Number.	Remarks.
$ cts.	$ cts.	$ cts.	$ cts.		
1,041 72	4,364 67	14,692 96	0 75	20	
270 00	442 71	4,226 71	1 24	21	
2,035 75	11,846 88	48,650 88	1 05	22	
....	....	....	.....	23	Not in operation.
.....	.....	.....	.....	24	
6,406 74	36,485 03	140,510 76	0 86	25	
7,565 43	26,571 53	90,476 69	1 40	26	
11,853 83	29,153 01	88,524 14	0 12	27	
30,898 64	354,620 94	883,547 50	1 40	28	
....	.....	.....	. . ...	29	Now included in Canadian Northern System.
9 10	2,371 36	10,025 47	0 57	30	
12,650 35	161,024 14	271,848 79	2 00	31	
. ...	....	....	.....	32	
2,143,902 86	6,211,924 83	19,791,788 15	1 02	33	
32,974 67	150,018 67	426,911 83	1 37	34	
....	....	....	.....	35	
9,013 14	72,681 72	201,719 64	1 40	36	
....	.....	.....	.....	37	
.....	2,117 98	8,823 97	0 55	38	
5,617 32	24,544 14	89,026 69	1 21	39	
5,244 11	22,529 82	82,051 01	0 90	40	
975 86	6,607 06	34,897 60	0 99	41	
1,045 27	5,943 88	34,843 17	1 63	42	
75 00	2,797 50	14,012 50	0 77	43	
76 55	908 21	2,462 12	0 88	44	
5,451 87	61,942 86	162,145 62	0 98	45	
97,103 73	323,624 02	991,705 37	1 18	46	

No. 7.—Summary Statement of Operating Expenses

Number.	Name of Railway.	Mileage.	Maintenance of Way, Buildings, &c.	Cost of Motive Power.
			$ cts.	$ cts.
47	Lenora Mount Sicker (not in operation)			
48	Liverpool and Milton	5·50	1,840 00	2,214 10
49	Lotbinière and Mégantic	30·00	6,621 96	7,515 39
50	Maganetawan River	1·91		
51	Manitoulin and North Shore	16·00	7,941 91	8,969 53
52	Massawippi Valley	35·46	25,132 44	54,140 04
53	Midland of Nova Scotia, now in Dominion Atlantic			
54	Montreal and Atlantic, (formerly South Eastern) .102·90 Lake Champlain and St. Lawrence Junction.... 60·50	163·40	138,259 04	175,946 11
55	Montreal and Province Line, (formerly Montreal, Portland and Boston)	58·60	19,964 46	21,779 19
56	Montreal and Vermont Junction	23·60	15,469 39	44,495 08
57	Morrissey, Fernie and Michel, B.C	10·85	14,223 15	30,842 86
58	Nelson and Fort Sheppard	55·41	32,827 91	30,442 39
59	New Brunswick Coal and Ry. Co	58·00	8,605 03	10,458 21
60	New Brunswick and Prince Edward Island	36·00	7,377 82	6,637 05
61	New Brunswick Southern	82 50	11,443 33	11,993 38
62	New Westminster Southern	24·10	13,714 53	11,531 51
63	Nosbonsing and Nipissing	5·50	13,614 89	2,978 24
64	Nova Scotia Steel and Coal Co's. Ry	12·50	4,331 19	6,412 71
65	Orford Mountain	48·50	12,892 82	8,663 83
66	Ottawa and New York	56·90	41,003 58	28,462 68
67	Phillipsburg Ry. and Quarry Co	7·50	491 25	377 78
68	Princeton Branch of Washington Co. Ry, (U.S.)	5·10	13,534 39	1,385 06
69	Qu'Appelle, Long Lake and Saskatchewan	253·96	136,972 23	203,593 13
70	Quebec Central	213·50	130,999 18	188,378 76
71	Quebec and Lake St. John	244·00	84,454 21	153,167 37
72	Quebec Ry. Light and Power Co. (formerly Quebec, Montmorency and Charlevoix)	30·00	6,292 36	13,538 93
73	Quebec Southern, comprising United Counties, East Richelieu Valley and South Shore Rys	143·75	25,917 85	57,525 57
74	Red Mountain	9·59	10,670 84	9,888 20
75	Rutland and Noyan	3·39	1,297 22	1,976 67
76	Salisbury and Harvey	45·00	13,445 28	10,524 01
77	Schomberg and Aurora	14·40	3,601 38	4,796 77
78	Stanstead, Shefford and Chambly	43·06	15,139 68	18,773 84
79	St. Clair Tunnel, yard and approaches	2·25	15,849 59	87,682 96
80	St. Lawrence and Adirondack	46·12	46,597 39	55,720 28
81	St. Mary's River, now Alberta Ry. and Irrigation Co			
82	Sydney and Louisburg (Dominion Coal Co)	53·99	70,478 18	139,485 51
83	Témiscouata	113·00	45,641 58	39,502 27
84	Temiscaming and Northern Ontario	113 00	41,060 06	89,394 54
85	Tilsonburg, Lake Erie and Pacific			
86	Thousand Islands	6·33	4,243 89	10,388 74
87	Toronto, Hamilton and Buffalo	83·67	99,251 24	128,901 17
88	Vancouver, Victoria and Eastern Ry. and Navigation Co.	45·87	23,790 08	57,137 80
89	Vancouver, Westminster and Yukon	14·81	10,120 26	2,038 11
90	Victoria and Sidney, B.C	16·26	5,523 25	6,038 57
91	Victoria Terminal Ry. and Ferry Co	18·40	3,759 73	456 95
92	Wellington Colliery Co., B.C	10·75	10,052 05	22,732 94
93	York and Carleton	5·75	1,060 00	1,963 43
	Totals	21,353·40	18,793,848 03	29,884,204 08

for the Year ended June 30, 1906—*Concluded.*

Maintenance of Cars.	General and Operating Charges.	Total.	Cost of operating per train mile.	Number.	Remarks.
$ cts.	$ cts.	$ cts.	$ cts.		
.....	.....	.....	....	47	
175 00	1,325 20	5,554 30	0 75	48	
1,445 61	5,883 12	21,466 08	0 97	49	
....	1,000 00	1,000 00	0 80	50	
2,730 74	10,297 66	29,939 84	2 05	51	
9,966 08	43,178 89	132,417 45	0 73	52	
....	... .	.....	.....	53	
27,583 67	167,371 04	509,159 86	1 25	54	
10,190 27	16,604 63	68,538 55	0 79	55	
3,045 77	28,038 68	91,048 92	0 67	56	
10,493 79	28,120 10	83,679 90	2 72	57	
2,767 01	33,792 34	99,829 65	1 65	58	
1,781 73	21,183 66	42,028 63	0 60	59	
1,044 88	4,699 53	19,759 28	0 50	60	
2,017 29	15,691 54	41,145 54	0 67	61	
1,882 23	38,107 44	65,235 71	1 01	62	
3,403 70	22,549 50	42,546 33	3 14	63	
255 22	2,100 13	13,099 25	1 31	64	
252 55	9,377 16	31,186 36	0 78	65	
4,919 56	47,762 92	122,148 74	1 07	66	Running powers in City of Ottawa—1·90 miles.
9 00	450 00	1,328 03	0 68	67	
444 48	1,009 66	16,373 59	1 60	68	
24,664 94	137,165 53	502,395 83	1 37	69	
41,113 35	195,413 01	555,904 30	0 79	70	
17,801 91	132,638 95	388,062 44	1 05	71	
3,815 99	16,542 78	40,190 06	1 35	72	
8,250 06	55,182 31	146,875 79	1 05	73	
764 40	16,533 33	37,856 77	3 03	74	
744 23	2,885 30	6,903 42	0 98	75	
1,151 81	4,623 72	29,744 82	1 05	76	
92 37	3,889 07	12,379 59	0 56	77	
6,378 06	16,897 59	57,189 17	0 79	78	
876 37	50,912 74	155,321 66	.. . .	79	
12,746 80	40,154 13	155,218 60	0 72	80	Running powers from Adirondack Junction to Montreal—8·70 miles.
.....	.....	.....	... .	81	
53,649 91	112,852 60	376,466 20	1 76	82	
12,144 52	34,173 00	131,461 37	0 88	83	
11,962 94	92,744 26	235,161 80	1 31	84	
.....	....	.....	.....	85	Now included in Canadian Pacific Ry. System.
675 07	11,176 62	26,484 32	1 00	86	
18,976 57	212,476 31	459,605 29	1 32	87	
5,659 96	49,456 77	136,044 61	1 84	88	
2,253 95	48,628 58	63,040 90	1 98	89	
615 48	11,656 62	23,833 92	0 96	90	
43 79	5,833 89	10,094 36	2 40	91	
9,766 86	375 00	42,926 85	... ...	92	
80 00	912 00	4,015 43	0 56	93	
8,896,209 22	29,555,173 16	87,129,434 49			

No. 8.—Summary of Accidents

Number.	Name of Railway.	Mileage.	Passengers, Employees or Others.	Fell from Cars or Engines.		Jumping on or off Trains or Engines when in motion.		At work on or near Track making up Trains.	
				Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
1	The Algoma Central & Hudson Bay	95·50	Employees	....	1	....	....	....	....
			Others	....	....	....	....	....	....
2	The Bay of Quinté	93·37	Employees	....	....	....	....	1	3
			Others	....	....	....	....	....	....
3	Canada Atlantic and leased lines	453·90	Passengers	....	....	....	2	....	....
			Employees	1	1	....	4	....	....
			Others	....	2	....	2	....	....
4	Canada Coal & Railway Co	12·00	Employees	....	....	....	....	....	....
5	Canadian Northern	2,482·20	Passengers	....	2	....	....	....	....
			Employees	1	12	1	2	3	9
			Others	....	1	1	4	....	....
6	Canadian Northern, Quebec	251·10	Passengers	....	....	....	1	....	....
			Employees	....	2	1	....	....	....
			Others	....	....	....	....	....	....
7	Canada Southern and leased lines	382·19	Passengers	....	....	....	....	....	....
			Employees	....	8	....	1	....	2
			Others	....	....	....	2	....	....
	Canadian Government Railways:								
8	Intercolonial	1,451·66	Passengers	....	2	2	1	....	....
			Employees	....	10	....	5	3	11
			Others	....	1	2	3	....	....
9	Prince Edward Island	267·50	Employees	....	....	....	1	....	4
10	Canadian Pacific and leased lines	8,506·30	Passengers	4	9	....	16	....	....
			Employees	7	51	1	22	....	....
			Others	3	5	13	10	....	....
11	Crow's Nest Southern	53·20	Passengers	....	....	....	....	....	....
			Employees	....	1	....	....	....	....
12	Cumberland Ry. & Coal Co	32·00	Employees	....	....	....	....	....	....
13	Dominion Atlantic and leased lines	293·50	Employees	....	....	....	....	....	....
			Others	....	....	....	....	....	....
14	Esquimalt & Nanaimo	78·00	Passengers	....	1	....	....	....	....
15	Grand Trunk	3,111·13	Passengers	....	4	2	23	....	....
			Employees	....	66	1	30	2	21
			Others	....	12	4	16	....	....
16	Halifax & South Western	245·03	Employees	....	....	....	....	....	....
			Others	....	....	....	....	....	....
17	Hereford	53·30	Employees	....	....	....	....	....	....
18	Irondale, Bancroft & Ottawa	48·00	Employees	....	....	....	....	....	....
19	Inverness Railway & Coal Co	61·00	Employees	1	....	....	....	1	....
20	Kaslo & Slocan, B.C	31·08	Employees	....	....	....	....	....	....
21	Kingston & Pembroke	112·85	Passengers	....	....	....	1	....	....
22	Lake Erie & Detroit River	228·69	Passengers	....	....	....	2	....	....
			Employees	2	3	....	2	....	1
			Others	....	....	....	2	....	....
23	Massawippi Valley	38·41	Others	....	....	....	....	....	....
24	Montreal & Atlantic	163·40	Employees	....	....	....	....	....	....
25	Montreal & Province	58·60	Employees	....	....	....	....	....	....
26	Montreal & Vermont Junction	26·60	Passengers	....	1	....	....	....	....
			Employees	....	....	....	....	....	....
27	Morrissey, Fernie & Michel	10·85	Employees	....	1	1	....	....	....
28	Nelson & Fort Sheppard	55·41	Employees	....	....	....	....	....	....
29	New Brunswick Coal & Ry. Co	58·00	Employees	....	....	1	....	....	....
30	New Brunswick Southern	82·50	Passengers	....	....	....	....	....	....
31	New Westminster Southern	24·10	Passengers	....	....	....	....	....	....
			Employees	....	....	1	1	....	....
			Others	....	....	....	....	....	....
32	Philipsburg Railway & Quarry Co	7·50	Employees	....	....	....	....	....	....
33	Qu'Appelle, Long Lake & Saskatchewan	253·96	Employees	....	....	....	....	1	....

for the Year ended June 30, 1906.

Putting Arms or Heads out of Windows.		Coupling Cars.		Collisions, or by Trains thrown from Track.		Struck by Engine or Cars at Highway Crossing.		Walking, standing, lying or being on Track.		Explosions.		Striking Bridges.		Other Causes.		Totals.		Number.
Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	
....	....	....	.....	....	.....	...	.. . .	....	.....	....	....	....	....	1	1	1	2	1
....	.....	....	....	....	.....	....	.....	2	.....	....	....	....	....	....	.....	2	....	
.. .	....	....	1	1	... ..	....	.....	....	... .	....	...	..	....	....	.....	2	4	2
....	.....	....	....	....	.....	....	.....	1	....	....	....	....	....	....	.....	1	....	
....	.....	....	.....	....	1	....	.....	....	....	....	..	....	....	....	....	.....	3	
....	.. .	...	7	1	3	....	....	....	....	..	....	....	..	....	16	2	31	3
....	....	...	.....	....	....	2	.....	3	. .	....	....	....	...	....	.....	5	4	
....	.....	....	1	....	.....	....	.....	....	....	....	....	....	....	....	.....	... ..	1	4
....	.....	....	....	....	.....	....	.....	....	.....	..	....	....	....	....	.....	.....	2	
....	.....	....	7	1	12	...	.....	....	.....	....	....	....	...	1	34	7	76	5
....	... ..	....	....	....	.....	....	.....	..	1	....	....	....	....	....	.....	1	6	
....	.. ..	....	.. .	....	....	....	...	....	.....	....	....	....	....	....	.....	.....	1	
....	.. .	1	. . .	....	...	....	....	1	1	...	....	..	...	....	28	3	31	6
....	.....	....	....	....	.....	....	... ...	1	1	....	....	....	....	....	... .	1	1	
. ..	. . .	....	.....	...	2	....	.....	....	.....	....	....	....	....	....	3	.... .	5	
....	.....	....	4	....	2	....	.....	...	8	....	....	..	....	....	13	.....	38	7
....	.....	....	.....	..	.....	1	2	7	3	....	....	....	....	...	2	8	9	
....	.....	....	.....	....	... ..	....	.....	....	...	....	....	....	....	....	8	2	11	
...	1	....	12	....	5	....	.....	3	3	....	...	..	....	..	15	6	62	8
....	.....	....	.....	....	.....	6	6	7	6	...	....	...	....	...	1	15	17	
....	.....	....	2	....	1	....	.....	....	.....	....	....	....	....	....	16	....	24	9
...	.....	....	.....	1	41	....	.....	3	2	...	....	..	....	....	15	8	83	
1	...	5	34	21	27	....	.....	18	16	....	....	1	1	5	29	59	180	10
....	.....	....	.....	1	.....	9	13	41	24	....	....	....	....	2	3	69	55	
....	.....	....	.....	....	.....	....	.....	..	.....	....	....	....	....	....	1	.. .	1	
....	...	....	...	....	.. ..	....	.....	....	...	....	....	....	....	....	.....	.....	1	11
....	.....	....	1	....	.....	....	.....	....	.....	....	....	..	..	....	.....	.....	1	12
....	.....	....	....	..	.....	....	. ..	1	.....	....	....	..	..	....	....	1	....	13
....	.....	....	.....	..	.....	....	2	2	.....	....	....	....	....	....	...	2	2	
....	. ..	....	.....	....	.....	....	.. ..	..	...	....	....	..	....	....	.....	.....	1	14
....	1	....	.....	..	50	....	....	2	.....	....	....	....	....	....	24	4	102	
....	3	3	44	9	34	2	2	12	12	2	2	....	3	9	139	40	356	15
....	.. ..	....	.... ..	1	12	27	47	54	27	....	....	...	...	7	22	93	136	
....	.....	....	.....	....	2	....	....	....	.....	....	....	....	....	....	.....	.....	2	
....	.....	...	.....	....	.....	2	1	....	. ..	....	....	.	....	....	.. .	2	1	16
....	.. ..	....	....	....	..	....	.....	....	.....	....	....	..	....	....	2	.....	2	17
....	.....	....	1	....	.....	....	.....	....	.....	....	....	....	....	....	.....	.....	1	18
...	.. ...	....	.....	....	.....	....	.....	...	...	....	....	....	....	....	... .	2	....	19
....	.....	....	1	...	....	....	....	....	.....	....	....	....	....	....	.....	...	1	20
....	.....	....	.....	....	.....	1	.....	....	.....	....	....	....	....	....	.....	1	1	21
...	.....	....	.....	....	2	....	.....	....	.....	....	....	....	....	....	1	....	5	
....	.....	..	.....	1	...	...	.....	...	1	....	2	....	....	....	9	3	18	22
....	.....	....	.....	....	....	....	3	2	... .	....	....	....	....	....	3	2	8	
....	.....	....	.....	....	.....	....	.....	1	....	....	....	....	....	..	.....	1	....	23
....	.....	....	1	....	1	....	.....	....	.. .	....	....	....	....	....	2	.....	4	24
....	.....	1	2	....	....	....	....	....	.....	....	....	....	....	....	....	1	2	25
....	...	....	....	....	....	....	.....	....	.....	....	....	....	....	....	.....	....	1	26
....	.....	....	.....	....	.....	....	. .	....	....	....	1	...	....	....	1	.....	2	
....	.....	....	.....	....	.....	....	.....	....	.....	....	...	....	....	....	2	1	3	27
....	.....	....	1	....	....	....	.....	....	.....	....	....	....	....	....	2	.....	3	28
....	.....	....	.....	....	.....	....	....	....	.....	....	....	....	....	....	....	1	....	29
....	.....	....	.... .	....	3	....	.....	..	.....	....	....	....	....	....	.....	.....	3	30
....	.....	....	.. ..	....	....	....	.....	....	.....	....	5	....	....	....	....	....	5	
....	.....	....	... .	....	1	...	....	....	.....	....	2	....	....	....	1	1	5	31
....	.....	....	.....	....	....	....	....	....	1	....	....	....	....	....	.....	.....	1	
....	.....	...	.....	....	.....	...	...	1	.....	....	....	....	....	..	.....	1	....	32
....	.....	....	.... .	....	.....	....	...	....	.....	....	....	....	....	....	.....	1	....	33

No. 8.—Summary of Accidents for the

Number.	Name of Railway.	Mileage.	Passengers, Employees or Others.	Fell from Cars or Engines.		Jumping on or off Trains or Engines when in motion.		At work on or near Track making up Trains.	
				Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
34	Quebec & Lake St. John	244·00	Passengers	..	....	....	2	....	.....
			Employees	....	3	....	....	....	....
35	Quebec Ry., Light & Power Co. (Montmorency Div.)	30·00	Passengers	....	....	....	....	....	.. .
			Employees	....	..	...	....	....	1
36	Quebec Southern	143·75	Employees	...	1	....	...	....	.... .
37	Red Mountain	9·59	Employees	....	1	....	....	....	.....
38	Stanstead, Shefford & Chambly	43·00	Passengers	....	1	....	....	....	.....
			Employees	....	....	....	1	....	....
			Others	....	1	....	1	....	.....
39	St. Clair Tunnel Co.	2·25	Employees	....	1	....	....	....	.....
40	St. Lawrence & Adirondack	54·82	Passengers	.. .	...	. ..	1	....	.....
			Employees	....	....	....	....	....	... ..
41	Sydney & Louisburg	53·99	Employees	....	..	....	....	2	. . .
			Others	....	....	....	...	....	.....
42	Temiskaming & Northern Ontario	113·00	Employees	....	....	...	...	...	.... .
			Others	....	....	...	....	....	.....
43	Temiscouata	113·00	Passengers	....	....	...	....	....	.....
			Employees	....	..	....	....	....	.....
44	Thousand Islands	6·33	Employees	....	....	...	....	....	.....
45	Toronto, Hamilton & Buffalo	83·67	Passengers	...	....	1	....	....	.....
			Employees	....	1	....	1	.. .	.....
46	Victoria, Vancouver & Eastern	45·87	Employees	....	....	....	....	....	.....
47	Vancouver, Westminster & Yukon	14·81	Passengers	....	....	....	....	....	.... .
			Employees	....	....	1	....	....	.....
				19	205	33	159	13	52

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Year ended June 30, 1906—*Concluded.*

Putting Arms or Heads out of Windows.		Coupling Cars.		Collisions, or by Trains thrown from Track.		Struck by Engine or Cars at Highway Crossing.		Walking, standing, lying or being on Track.		Explosions.		Striking Bridges.		Other Causes.		Totals.		Number.
Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	
																	2	34
								1							1	1	4	
															1		1	35
																	1	
																	1	36
			1		8				1						3		14	37
																	1	
														1		1	1	38
																	2	
																	1	39
															1		2	40
			1												1		2	
			3													2	3	41
								2								2		
			1					1	1							1	2	42
								2								2		
					1												1	43
			1														1	
			1														1	44
																1		45
															1		3	
													1		5		6	46
					2												2	47
				1												2		
1	5	10	128	38	209	50	76	168	108	2	12	1	5	26	406	361	1,365	

No. 9.—Statistics of Lines of Railway owned by Coal and

Name of Company.	Location.		Length of Line.	Gauge.	Length of Road laid with Steel Rails.	Length of Road laid with Iron Rails.	Weight of Steel Rails per yard.
			Miles.		Miles.	Miles.	Lbs
Acadia Coal Co., Ltd,. N.S.....	I.C.R. to Slopes Colliery	2·50					
" "	Branch, Allan Shaft Colliery to New Glasgow	1·00					
" "	Sidings	2·50	14 00	4·8½	13·00	1·00	56
" "	New Glasgow to Thorburn	6·00					
" "	Sidings at Thorburn...	1·00					
" " . . .	Sidings along route....	1·00					
Intercolonial Coal Mining Co., Ltd., N.S.	Drummond Colliery to Abercrombie Pier...*10·00						
" " ..	Branch, Drummond Colliery to Drummond Siding, I.C.R.	†·50	10·50	4·8½	10·50	.....	56
Londonderry Iron Co., Ltd., N.S ..	Londonderry to Londonderry Station....	2·50					
" " ..	Branch, East Mines to East Mines Station..	4·00					
" " ..	Londonderry to West Mines Ore Workings.....	5·00	15·00	4·8½ 3·0	15·00	.....	56 40
" " ..	Sidings around works at Londonderry.....	3·50		4·8½			
N. S. Steel & Coal Co., Ltd., N.S..	Sydney Mines to North Sydney	5·00					
" "	Branch, Sydney No. 1 to Sydney No. 3	3·00	31·00	4·8½	31·00	.....	56 & 80
" "	Sidings at Sydney.....	23·00					
Dominion Coal Co., Ltd., N.S. (Sydney & Louisburg, Ry.)	Sydney to Louisburg..	39·30					
" "	Branch, main line to Bore Hole....	·04					
" "	Branch, main line to International Mine..	·25					
" "	Branch, main line to Reserve Mine. ...	2·30					
" "	Branch, main line to Caledonia Mine.....	1·20					
" "	Branch, main line to Hub Mine....	·93					
" "	Branch, main line to Point in direction of Port Morien..... .	·38	53·99	4·8½	53·99	.....	80
" "	Branch, main line to Glace Bay Wharf...	1·00					
" "	Branch, main line to Wash Plant	·54					
" "	Branch, main line to Dom. No. 6 Colliery.	5·32					
" "	Branch, main line to Mira Quarry..	·25					
" "	Branch, main line to Sydney Coal Yard..	1·23					
" "	Leased, main line to I.C.R. at Sydney....	1·25					

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Iron Mining Companies for the Year ended June 30, 1906.

Weight of Iron Rails per yard.	No. of Junctions with other Railways.	No. of Crossings of other Railways at rail level.	No. of Crossings of Highways.	No. of Overhead Bridges.	Height, clear headway, of overhead bridges above rail level.	No. of Locomotive Engines.	No. of Wagons.	Total Mileage Worked	No. of Tons of Coal Carried.	No. of Tons of Iron Ore Carried.	No. of Tons of Iron Carried.	No. of Tons of other Freight Carried.	Total No. of Tons of Freight Carried.
Lbs.					Ft.								
50	2	.....	3	1	22	3	...	14·00	124,000	.....	....	10,000	134,000
.....	1	1	8	....	.....	2	170	10·50	255,377	.....	....	§10,960	266,337
. ...	2	.....	10	....	.....	4	66	15·00	114,325	87,540	41,498	43,000	286,363
.... .	1	.....	6	....	... .	9	340	31·00	639,077	131,510	59,498	229,550	1,059,635
.... .		5	31	3	18	23	1527	53·99	3,570,115	.....	....	200,846	3,770,961

No. 9.—STATEMENT of Lines of Railway owned by Coal and

Name of Company.	Location.	Length of Line.	Gauge.	Length of Road laid with Steel Rails.	Length of Road laid with Iron Rails.	Weight of Steel Rails per yard.
		Miles.		Miles.	Miles.	Lbs.
Wellington Colliery Co., Ltd	Ladysmith to Wellington Extension..... 11·00 Branch, E. & N. Ry., Ladysmith to wharfs at Ladysmith. . . 1·00 Sidings..... ..... 1·00	13·00	4·8½	13·00	.....	50 to 60
Western Fuel Co., Ltd.....	Wharves to Harewood Mine...	7·00	4·8½	7·00	.....	56
	Totals.....	144·49	... ..	143·49	1·00	.....

* Connecting Drummond Colliery with Coal Shipping Pier, Pictou Harbour. † Connecting Drummond

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Iron Mining Companies for the Year ended June 30, 1906—*Concluded.*

Weight of Iron Rails per yard.	No. of Junctions with other Railways.	No. of Crossings of other Railways at rail level.	No. of Crossings of Highways.	No. of Overhead Bridges.	Height, clear headway, of overhead bridges above rail level.	No. of Locomotive Engines.	No. of Wagons.	Total Mileage Worked	No. of Tons of Coal Carried.	No. of Tons of Iron Ore Carried.	No. of Tons of Iron Carried.	No. of Tons of other Freight Carried.	Total No. of Tons of Freight Carried.
Lbs.					Ft.								
. .	1	1	6	....	....	6	250	13·00	335,149	.....	.....	1,653	336,802
.. ...	....	....	1	...	.....	3	272	7·00	160,332	.....	.... . .	¶ 1,000	161,332
. ...	8	7	65	....	.....	50	2625	144·49	5,198,375	219,050	100,996	497,009	6,015,430

Colliery with Intercolonial Railway. § Mostly wood for timbering mines. ¶ Mine stores and timber.

No. 10.—Lines of Railway owned by Coal and Iron Mining Companies—Summary of Accidents for the Year ended June 30, 1906.

Name of Company.	Mileage.	Passengers, Employees or Others.	Fell from Cars or Engines.		Jumping on or off Trains or Engines when in motion—		At work on or near track making up trains.		Coupling Cars—	Collisions, or by cars thrown from track.	Walking, standing, lying or being on Track.		Explosions.		Other causes—	Totals	
			Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Injured.	Killed.	Killed.	Injured.	Killed.	Injured.	Injured.	Killed.	Injured.
Intercolonial Coal Mining Co., Ltd	10·50	Employees	1	1												1	1
		Others		1		1										1	2
Nova Scotia Steel & Coal Co., Ltd	31·00	Employees					2		1	1						2	1
		Others								3		2					3
Dominion Coal Co., Ltd	53·99	Employees														2	
		Others															
Totals	95·49		1	2		1	2		1	4	1	2				6	7

No. 11.—Statement of Aid granted to Railways—Constructed and under Construction—by Governments, up to the year ended June 30, 1906.

Name of Railway.	Loan.	Total.	Bonus.	Total.	Subscription to Shares or Bonds.	Total.
Dominion Government.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Albert (now Salisbury and Harvey)	* 29,665 45					
Algoma Central and Hudson Bay			A 924,976 00			
Albert Southern			50,460 00			
Atlantic and Northwest in Canada			a 1,422,000 00			
Bay of Quinté			69,120 00			
Baie des Chaleurs (now in Atlantic and Lake Superior)			A 766,490 84			
Belleville and North Hastings—Grand Junction (now in Grand Trunk)			21,888 00			
Beauharnois Junction			62,400 00			
Brantford, Waterloo and Lake Erie (now Toronto, Hamilton and Buffalo)			57,600 00			
Brockville, Westport and Northwestern			105,200 00			
Bruce Mines and Algoma			A 53,920 00			
Buctouche and Moncton			101,600 00			
Canada Atlantic			282,355 20			
Canada Central			1,525,250 00			
Canada Eastern (formerly Northern and Western of New Brunswick)			b 374,839 84			
Canadian Pacific			c56,990,474 54			
" Crow's Nest Pass			3,630,000 00			
Cap de la Madeleine			7,424 00			
Cape Breton			A 192,000 00			
Caraquet			224,000 00			
Central of New Brunswick (now New Brunswick Coal and Ry.)			A 190,400 00			
Central of Nova Scotia (formerly Nova Scotia Central, now in Halifax and Southwestern)			739,200 00			
Central Ontario			A 67,200 00			
Chateauguay and Northern (now, Canadian Northern, Quebec)			307,595 00			
Coast Railway of Nova Scotia (now Halifax and Yarmouth)			A 160,000 00			
Cobourg, Northumberland and Pacific			A Lapsed.			
Columbia and Kootenay			88,800 00			
Cornwallis Valley (now in Dominion Atlantic)			44,800 00			
Cumberland Railway and Coal Company			39,850 00			
Drummond County (now in Intercolonial system)			A 423,936 00			
Dominion Lime Company (now in Hereford Ry)			15,360 00			

*Including $14,665.45 used iron rails. ‡ Including $83,612.54 rails to St. Martin's and Upham Ry. *a* Payable in half-yearly instalments of $35,550 each for 20 years, commencing July 1, 1889, and also $1,963,500 as bonus in addition on the portion of this railway through the state of Maine. *b* Including $24,439.84 rails to Chatham Branch. *c* Including cost of railway lines built by Dominion Government, and transferred to Canadian Pacific Railway Company, $31,145,738.54.

No. 11.—Statement of Aid Granted to Railways by Governments—*Continued.*

Name of Railway.	Loan.	Total.	Bonus.	Total.	Subscription to Shares or Bonds.	Total.
Dominion Government—*Continued.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
East Richelieu Valley (now part of Quebec Southern)						
Edmonton, Yukon and Pacific			160,000 00			
Elgin and Havelock			*d* 82,652 82			
Erie and Huron (now in Lake Erie and Detroit River Ry.)			96,000 00			
Esquimalt and Nanaimo			750,000 00			
Fredericton and St. Mary's Railway and Bridge Company			30,000 00			
Grand Trunk	15,142,633 33					
Victoria Jubilee Bridge of Grand Trunk Ry			500,000 00			
Grand Trunk, Georgian Bay and Lake Erie, Owen Sound Branch			39,744 00			
Great Eastern (in Atlantic and Lake Superior)			40,345 00			
Great Northern (exclusive of Ottawa Valley Section, now, Canadian Northern Quebec)			*A* 536,188 31			
Guelph Junction			46,000 00			
Gulf Shore			*A* 53,699 20			
Hampton and St. Martin (formerly St. Martin and Upham)			‡ 83,612 54			
Harvey Branch			5,553 57			
Hereford			155,200 00			
Intercolonial			81,238,728 63			
Interprovincial Bridge—Ottawa, now in Ottawa, Northern and Western			212,500 00			
International (Atlantic and Northwest) C.P.R			156,800 00			
Inverness and Richmond, now Inverness Ry. and Coal Co			*A* 627,000 00			
Irondale, Bancroft and Ottawa			144,000 00			
James Bay			848,000 00			
Joggins (now Canada Coals and Railway Co.)			37,500 00			
Kent Northern	$58,334 27					
Kingston, Napanee and Western (now in Bay of Quinté)			208,732 80			
Kingston and Pembroke			48,000 00			
L'Assomption			11,200 00			
Lake Erie and Detroit River			475,851 00			
Lake Temiscamingue Colonization			310,335 95			
Leamington and St. Clair (now in Canada Southern)			51,200 00			
Lindsay, Bobcaygeon and Pontypool			185,173 06			
Lotbinière and Megantic			96,000 00			
Lower Laurentian (now in Great Northern)			217,600 00			
Maganetawan River			3,552 00			
Manitoulin and North Shore			*A* 32,000 00			
Massawippi Valley			5,376 00			
Middleton and Victoria Beach			98,092 80			

Midland of Nova Scotia			*A*	362,200 30
Montfort and Gatineau Colonization (in Great Northern)				167,440 00
Montreal and Lake Maskinongé				41,280 00
Montreal and Champlain Junction				103,690 00
Montreal and Ottawa				192,000 00
Montreal and Province Line (formerly Montreal, Portland and Boston)				58,560 00
Montreal and Western				361,270 00
Nakusp and Slocan				121,600 00
New Brunswick and Prince Edward Island				113,440 00
New Glasgow Iron and Coal Co. (now Nova Scotia Steel Co.)				39,840 00
Northern and Pacific Junction				1,320,000 00
Northern Colonization				133,760 00
Nova Scotia Southern (now in Halifax South Western)				149,776 00
Ontario, Belmont and Northern (leased to Central Ontario)				30,720 00
Ontario and Quebec				196,000 00
Ontario and Rainy River (now in Can. Northern)			*A*	1,909,132 00
Orford Mountain				168,814 50
Ottawa, Arnprior and Parry Sound and Parry Sound Colonization (in Canada Atlantic)			*A*	779,712 00
Ottawa and Gatineau (now Ottawa, Northern and western)			*A*	410,688 00
Ottawa and New York			*A*	262,384 00
Ottawa Valley (formerly part of Great Northern) now in Atlantic and Lake Superior				21,600 00
Parry Sound Colonization (in Canada Atlantic)				152,800 00
Pembroke Southern (in Canada Atlantic)			*A*	64,000 00
Philipsburg Railway and Quarry Co			*A*	23,712 00
Pontiac Pacific Junction, now in Ottawa, Northern and Western			*A*§	193,578 00
Pontiac and Renfrew				13,600 00
Port Arthur, Duluth and Western (now in Canadian Northern)				271,200 00
Prince Edward Island				7,215,654 34
Quebec Bridge and approaches				374,353 33
Quebec and Lake St. John				1,230,695 00
Quebec Central				348,342 00
Quebec, Montmorency and Charlevoix				96,000 00
Quebec, Montreal, Ottawa and Occidental, North Shore, Montreal to Quebec				†954,000 00
" " " "				1,500,000 00
" " Montreal to Ottawa				†1,440.000 00
Quebec and New Brunswick				201,600 00
Restigouche and Western (now International Ry. of N. B.)			*A*	320,000 00
Schomberg and Aurora				48,000 00
St. Louis and Richibucto				22,400 00
St. John Bridge and Railway Extension	433,900 00			
St. Lawrence and Adirondack			*A*	149,481 60
St. Mary's River				148,094 00
St. Clair Tunnel				375,000 00
St. Stephen and Milltown			*A*	14,848 00
Shuswap and Okanagan				163,200 00
South Norfolk				54,400 00

d Including $44,252.82 iron rails. ‡ Used iron rails. † Dominion Government pays to Quebec Government 5 per cent interest per annum on these two amounts. *A See* note on page No. 21. § Balance $138,272—has lapsed.

11 — STATEMENT of Aid granted to Railways by Governments—*Continued.*

Name of Railway.	Loan.	Total.	Bonus.	Total.	Subscription to Shares or Bonds.	Total.
DOMINION GOVERNMENT—*Concluded.*	$ cts.	$ cts.	$ cts	$ cts.	$ cts.	$ cts.
South Shore (formerly Montreal and Sorel, now in Quebec Southern)			296,998 38			
Sydney and Louisbourg—Dominion Coal Company			89,600 00			
Témiscouata			645,950 00			
Thousand Islands			29,840 00			
Tilsonburg, Lake Erie and Pacific			*A* 158,871 48			
Tobique Valley			134,016 00			
Toronto, Grey and Bruce			14,656 00			
United Counties (now part of Quebec Southern)			*A** 188,816 00			
Waterloo Junction			32,800 00			
West Ontario Pacific			60,000 00			
Western Counties or Yarmouth and Annapolis (now in Dominion Atlantic)			500,000 00			
Windsor and Annapolis (now in Dominion Atlantic)			1,193,369 00			
York and Carleton			*A* 18,336 00			
		15,664,533 05		182,562,951 03		
ONTARIO GOVERNMENT.						
Bay of Quinté including Kingston Napanee and Western			84,000 00			
Brantford, Norfolk and Port Burwell, Grand Trunk			68,000 00			
Bruce Mines and Algoma			50,918 00			
Canada Atlantic			270,000 00			
Canada Central			1,479,000 00			
Canada Southern			147,859 00			
Central Ontario			189,500 00			
Cobourg, Blairton and Marmora	26,000 00		18,740 09			
Credit Valley			531,000 00			
Erie and Huron (now in Lake Erie and Detroit River Ry.)			83,000 00			
Grand Junction and Belleville and North Hastings			224,660 00			
Grand Trunk, Georgian Bay and Lake Erie			336,000 00			
Hamilton and Northwestern			565,020 00			
Irondale, Bancroft and Ottawa			315,000 00			
Kingston and Pembroke			456,493 00			
London, Huron and Bruce			178,630 00			
Lindsay Bobcaygeon and Pontypool			52,500 00			
Magnetawan River			10,000 00			
Midland Ontario			168,350 00			
Montreal and Ottawa			100,000 00			
Northern			196,188 00			

North Simcoe			83,300 00	
Ontario, Belmont and Northern (leased to Central Ontario)			19,149 39	
Ontario and Rainy River (now in Canadian Northern)			1,072,800 00	
Ottawa, Arnprior and Parry Sound, leased to Canada Atlantic			434,076 06	
Ottawa and New York			35,000 00	
Parry Sound Colonization, leased to Canada Atlantic			143,250 00	
Pembroke Southern (leased to Canada Atlantic)			55,500 00	
Port Arthur, Duluth and Western (now in Canadian Northern)			255,571 00	
Temiskaming and Northern Ontario			7,808,216 85	
Tilsonburg, Lake Erie and Pacific			38,564 00	
Toronto and Nipissing			105,212 00	
Lake Simcoe Junction			53,000 00	
Toronto, Grey and Bruce			375,282 00	
Victoria			312,000 00	
Wellington, Grey and Bruce			241,276 00	
Whitby, Port Perry and Lindsay			94,957 59	
Interprovincial Bridge at Ottawa			50,000 00	
		26,000 00		16,702,012 89
QUEBEC GOVERNMENT.				
Baie des Chaleurs (now in Atlantic and Lake Superior)			1,415,000 00	
Beauharnois Junction			179,073 00	
Canada Atlantic			200,000 00	
Great Eastern (now in Atlantic and Lake Superior)			156,000 00	
Great Northern (including Lower Laurentian)			1,025,733 66	
Drummond County (now in Intercolonial Ry.)			347,420 54	
East Richelieu Valley (now part of Quebec Southern)			115,215 00	
Hereford (including Dominion Lime Co.'s Line)			60,500 00	
International (now Atlantic and Northwest—C.P.R.)			391,122 02	
Lake Champlain and St. Lawrence Junction			250,280 00	
Lake Témiscamingue Colonization			350,076 82	
L'Assomption			5,512 50	
Lotbinière and Mégantic			126,994 00	
Missisquoi Valley (now Atlantic and Northwest—C P.R.)			228,000 00	
Montfort and Gatineau Colonization (now in Great Northern)			168,395 80	
Montreal and Champlain Junction			150,000 00	
Montreal and Ottawa			182,210 00	
Montreal, Portland and Boston (now Montreal and Province Line)			231,122 00	
Montreal and Sorel (now South Shore)			276,645 00	
Montreal and Western			472,500 00	
Montreal and Lake Maskinongé			87,750 00	
Northern Colonization, C. P. R			96,000 00	
Orford Mountain			138,884 92	
Ottawa and Gatineau (now Ottawa Northern and Western)			780,570 00	
Ottawa Valley (now in Atlantic and Lake Superior)			25,390 00	
Philipsburg Ry. and Quarry Co			25,667 00	
Pontiac Pacific Junction (now Ottawa Northern and Western)			412,102 58	

* Balance $19,184—has lapsed.

A See Note on page No 21.

No. 11.—Statement of Aid granted to Railways by Government—*Continued.*

Name of Railway.	Loan.	Total.	Bonus.	Total.	Subscription to Shares or Bonds.	Total.
Quebec Government—*Concluded.*	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Pontiac and Renfrew			17,433 60			
Quebec Bridge			250,000 00			
Quebec and Lake St. John			2,533,000 00			
Quebec Central			1,076,123 14			
Quebec, Montreal, Ottawa and Occidental, including North Shore	3,722,956 00		727,000 00			
Quebec, Montmorency and Charlevoix			306,945 50			
Southeastern (now Montreal and Atlantic)			444,000 00			
St. Lawrence and Adirondack			70,400 00			
Témiscouata			362,250 00			
United Counties (now part of Quebec Southern)			210,000 00			
Waterloo and Magog (now in Atlantic and Northwest—C P.R)			92,000 00			
		3,722,956 00		13,987,317 08		
New Brunswick Government.						
Albert (now Salisbury and Harvey)			455,000 00			
Albert Southern			48,680 00			
Beersville Coal and R'ly Co			16,200 00			
Buctouche and Moncton			96,000 00			
Caraquet			180,000 00			
Central of New Brunswick (now New Brunswick Coal and Rly. Co)			139,000 00			
Elgin, Petitcodiac and Havelock (now Elgin and Havelock)			107,500 00			
Fredericton			230,000 00			
Grand Southern (now New Brunswick Southern)			413,000 00			
Gulf Shore			41,950 00			
Harvey Branch			9,000 00			
Kent Northern			135,000 00			
New Brunswick			76,000 00			
New Brunswick and Canada			575,000 00			
New Brunswick and Prince Edward Island			99,708 90			
Quebec and New Brunswick			45,000 00			
Restigouche and Western—now International of New Brunswick			250,000 00			
St. Martin and Upham (now Hampton and St. Martin)			145,600 00			
St. John Bridge and Railway extension			5,181 81			
St. John and Maine			880,000 00		300,000 00	
St. Louis and Richibucto			21,000 00			
St. Stephen and Milltown			13,920 00			

Témiscouata			66,000 00			
Tobique Valley			70,000 00			
York and Carleton			13,897 00			
				4,132,637 71		300,000 00
NOVA SCOTIA GOVERNMENT.						
Cape Breton			96,000 00			
Coast Line (now Halifax and Yarmouth)			156,499 33			
Cornwallis Valley (now in Dominion Atlantic)			44,890 00			
Canada Coal and Railway Co.'s Line (formely Joggins)			35,200 00			
Inverness and Richmond (now Inverness railway and Coal Co)			272,000 00			
Midland Ry. of Nova Scotia (formerly Stewiacke Valley and Lansdowne)			185,600 00			
Middleton and Victoria Beach			96,000 00			
New Glasgow Iron, Coal and Railway Co. (now Nova Scotia Steel Co.)			40,000 00			
Halifax and Southwestern			1,250,012 92			
Nova Scotia Central (now in Halifax and Southwestern)			432,261 08			
Nova Scotia Southern (in Halifax & Southwestern)			374,400 00			
Springhill and Parrsboro' (Cumberland Railway and Coal Co.)			173,650 00			
Sydney and Louisbourg, Dominion Coal Co			82,000 00			
Western Counties, Yarmouth and Annapolis (now in Dominion Atlantic)			679,197 45			
				3,917,620 78		
MANITOBA GOVERNMENT.						
Canadian Pacific			375,377 50			
Manitoba Southwestern Colonization	900,000 00					
The Manitoba						
		900,000 00	641,575 25			
				1,016,952 75		
BRITISH COLUMBIA GOVERNMENT.						
Canadian Pacific			37,500 00	121,135 00		
Victoria and Sydney (B.C.)			83,635 00			
Total aid granted by Governments		20,313,489 05		222,440,627 24		300,000 00

NOTE.—For Statement of payments of Government Aid granted to Railways, see No. 1 Summary Statement of Capital.

No. 12.—STATEMENT of Aid granted to Railways—Constructed and under Construction—by Municipalities, June 30, 1906.

Municipalities.	Name of Railway.	Loan.	Total.	Bonus.	Total.	Subscription in Shares or Bonds.	Total.
ONTARIO.		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Deseronto	Bay of Quinté Ry				30,000 00		
Town of Napanee	Kingston, Napanee and Western			30,000 00			
Village of Newburgh	" "			7,500 00			
Township of Camden	" "			30,000 00			
" Sheffield	" "			15,000 00			
" Loughborough	" "			5,000 00			
City of Kingston	" "			75,000 00			
Accrued interest	" "			5,440 43			
Town of Brockville	Brockville, Westport and Sault Ste. Marie			36,000 00	167,990 43		
Elizabethtown	" "			7,000 00			
Rear of Yonge and Escott	" "			15,000 00			
" Leeds and Lansdowne	" "			5,000 00			
Bastard and Burgess	" "			28,000 00			
South Crosby	" "			6,000 00			
Village of Newboro'	" "			4,000 00			
North Crosby	" "			15,000 00			
					116,000 00		
Village of Bruce Mines	Bruce Mines & Algoma				500 00		
Various municipalities	Buffalo and Lake Huron				966,000 00		
Renfrew	Canada Central, now Can. Pacific					30,000 00	
Horton	"					7,500 00	
Admaston	"					5,000 00	
							42,500 00
County of Elgin	Canada Southern			200,000 00			
Township of Townsend	"			30,000 00			
" Dereham	"			15,000 00			
" Anderdon	"			15,000 00			
Town of St. Thomas	"			25,000 00			
Township of Malden	"			15,000 00			
Town of Amherstburg	"			15,000 00			
South Norwich	"			7,500 00			
					322,500 00		
Sault Ste. Marie	Canadian Pacific			20,000 00			
Carleton Place	"			20,000 00			
Owen Sound	"			40,000 00			
					80,000 00		
Northumberland and Durham	Cobourg, Blairton and Marmora				113,500 00		

West Hawkesbury	Central Counties (leased to Canada Atlantic)			15,000 00	
Vankleek Hill	" "			1,200 00	
Dalkeith	" "			800 00	
Rockland	" "			6,000 00	
Clarence	" "			1,000 00	
					24,000 00
Town of Trenton	Central Ontario			10,000 00	
Wellington Village	"			2,500 00	
Town of Picton	"			21,000 00	
County of Prince Edward	"			60,000 00	
					93 500 00
County of Oxford	Credit Valley			200,000 00	
" Wellington	"			135,000 00	
" Waterloo	"			110,000 00	
" Peel	"			75,000 00	
" Halton	"			70,000 00	
City of Toronto	"			350,000 00	
" St. Thomas	"			50,000 00	
Town of Milton	"			30,000 00	
" Brampton	"			20,000 00	
" Ingersoll	"			10,000 00	
" Orangeville	"			15,000 00	
Village of Streetsville	"			20,000 00	
					1,085,000 00
County of Kent	Erie and Huron, now in Lake Erie and Detroit			155,000 00	
City of Chatham	"			30,000 00	
Town of Sarnia	"			16,000 00	
Village of Dresden	"			20,500 00	
" Bleinheim	"			11,000 00	
" Wallaceburg	"			11,000 00	
Township of Sombra	"			14,000 00	
" Woodhouse	Grand Trunk, Georgian Bay and Lake Erie			15,000 00	257,500 00
Town of Simcoe	" "			10,000 00	
Township of South Norwich	" "			10,000 00	
" North "	" "			40,000 00	
Town of Woodstock	" "				
Township of East Oxford	" "			25,000 00	
" Woodstock	" "			25,000 00	
Town of Woodstock	" "			60,000 00	
" Stratford	" "				
County of Perth	" "			120,000 00	
Township of Mornington	" "			40,000 00	
Township of Elma	" "			10,000 00	
Town of Listowel	" "			15,000 00	
Township of Wallace	" "			10,000 00	
Town of Palmerston	" "			30,000 00	
Township of Minto	" "			25,000 00	

Municipalities.	Name of Railway.	Loan.	Total.	Bonus.	Total.	Subscription to Shares or Bonds.	Total.
Ontario—*Continued.*		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Town of Harriston	Gr'd Tr'k, G'org'n Bay, and L'ke Erie			20,000 00			
Township of Normanby	" "			80,000 00			
Township of Bentinck	" "			65,000 00			
Township of Brant	" "			20,000 00			
" Elderslie	" "			45,000 00			
" Arran	" "			45,000 00			
" Amabel	" "			43,000 00			
" Keppel	" "			32,000 00			
" Albemarle	" "			10,000 00			
Town of Mount Forest	" "			22,000 00			
Township of Egremont	" "			60,000 00			
Township of Glenelg	" "			20,000 00			
Town of Durham	" "			32,000 00			
					929,000 00		
Town of Owen Sound	Grand Trunk, Owen Sound Branch.			75,000 00			
Township of Sarawak	" "			7,500 00			
Township of Keppel	" "			3,000 00			
					85,500 00		
City of Belleville	Grand Junction and Belleville			150,000 00			
Village of Sterling	" & N. Hasting Ry.			5,000 00			
Township of Rawdon	"			15,000 00			
" Seymour	"			35,000 00			
" Percy	"			8,000 00		50,000 00	
" Asphodel	"						
					213,000 00		50,000 00
City of Guelph	Guelph June. leased to Can. Pac. R.					193,000 00	193,000 00
Town of Goderich	Guelph and Goderich, leased to Can. Pac. Ry.			8,000 00			
Village of Elmira	" "			3,000 00			
Township of Mornington	" "			5,000 00			
" Wellesley	" "			12,000 00			
Village of Blythe	" "			3,000 00			
					31,000 00		
Town of Parry Sound	James Bay				20,000 00		
County of Frontenac	Kingston and Pembroke			170,000 00			
City of Kingston	" "			318,000 00			
Village of Renfrew	" "			3,000 00			
					491,000 00		

City of Hamilton	Hamilton and North-western				99,733 00	
Village of Georgetown	"	"			11,289 00	
County of Peel	"	"			30,974 00	
" Simcoe	"	"			354.007 00	
Town of Collingwood	"	"			12,084 00	
Township of Innisfil	"	"			22,592 00	
" Woodhouse	"	"			20,740 00	
" Adjala	"	"			2,500 00	
" Essa	"	"			2,500 00	
" Tossoronto	"	"			10,000 00	
" Mulmur	"	"			5,000 00	
Village of Alliston	"	"			8,000 00	
Township of Nottawasaga	"	"			20,386 00	
						599,805 00
City of Ottawa	Interprovincial Bridge					150,000 00
Township of South Colchester	Lake Erie and Detroit River				20,000 00	
" Gosfield	"	"			15,000 00	
Village of Kingsville	"	"			10,000 00	
Township of Romney	"	"			10,000 00	
" East Tilbury	"	"			5,000 00	
" Raleigh	"	"			10,000 00	
Village of Blenheim	"	"			5,000 00	
" Ridgetown	"	"			12,500 00	
Township of Alborough	"	"			7,000 00	
" Oxford	"	"			2,000 00	
Village of Dutton	"	"			2,500 00	
						99,000 00
Township of East Gwillimbury	Lake Simcoe Junction (in Grand Trunk system)				45,000 00	
" North "	"	"			20,000 00	
" Georgina	"	"			20,000 00	
" Whitchurch	"	"			15,000 00	
						100,000 00
Town of Lindsay	Lindsay, Bobcaygeon and Pontypool				25,000 00	
" Bobcaygeon	"	"			11,000 00	
Township of Verulam	"	"			14,000 00	
" Harvey	"	"			3,000 00	
" Ops	"	"			15,000 00	
" Cartwright	"	"			5,000 00	
						73,000 00
Township of London	London, Huron and Bruce (now in Grand Trunk system)				15,000 00	
" Stephen	"	"			17,500 00	
" Osborne	"	"			25,000 00	
" Hay	"	"			15,000 00	
" Goderich	"	"			15,000 00	

No. 12.—Statement of Aid granted to Railways by Municipalities—*Continued.*

Municipalities.	Name of Railway.	Loan.	Total.	Bonus.	Total.	Subscription to Shares or Bonds.	Total.
Ontario—*Continued.*		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Township of East Wawanosh	London, Huron and Bruce (now in Grand Trunk system)			25,000 00			
" Hallet	" "			25,000 00			
" Tuckersmith	" "			10,000 00			
" Turnberry	" "			5,000 00			
" Morris	" "			10,000 00			
" Stanley	" "			10,000 00			
Village of Clinton	" "			20,000 00			
" Exeter	" "			10,000 00			
Village of Kincardine	" "			9,000 00			
" Wigan							
City of London	" "			100,000 00			
Municipalities	London and Port Stanley (leased to Lake Erie and Detroit river Ry.)	1,332,854 00			311,500 00		
County of Elgin	" "					80,000 00	
" Middlesex	" "					100,000 00	
City of London	" "		1,332,854 00			200,000 00	
" St. Thomas	" "					34,000 00	
							414 000 00
Township of Thorah	Midland (now in Grand Trunk system).			50,000 00			
Town of Port Hope	"			30,000 00			
Townships of Orillia and Matchedash	"			12,500 00			
Town of Orillia	"			12,500 00			
Township of Tay	"			21,370 85			
Village of Omemee	"			2,000 00			
Township of Mara	"			12,500 00			
Town of Peterborough	"			4,000 00			
					144,870 85		
City of Toronto	Northern (now in Grand Trunk System).			100,000 00		190,000 00	
County of Simcoe	"					200,000 00	
Town of Barrie	"			30,000 00			
" Orillia	"			12,500 00			
Townships of Collingwood, Euphrasia and St. Vincent	"			99,480 00			
					241,980 00		390 000 00

Town of Smith's Falls	Ontario and Quebec (in Can. Pacific system).			25,000 00			
" Perrickville	"			10,000 00			
Township of West Winchester	"			15,000 00			
" Thamesford	"			2,500 00			
					52,500 00		
Town of Port Arthur	Ontario and Rainy River (now Can. Northern).				50,000 00		
City of Ottawa	Ottawa, Arnprior and Parry Sound (now Canada Atlantic).			150,000 00			
Township of Huntley	" "			2,900 00			
" Hagarty	" "					2,000 00	
Town of Arnprior	" "					30,000 00	
					152,900 00		32,000 00
Town of Pembroke	Pembroke Southern			20,000 00			
" Port Arthur	Port Arthur, Duluth and Western (now in Canadian Northern).			25,000 00			
Municipality of Neebing	" "			15,000 00			
					40,000 00		
Township of Russell	Ottawa and New York			10,000 00			
City of Ottawa	"			75,000 00			
					85,000 00		
Township of King	Schomberg and Aurora				12,000 00		
Town of Simcoe	South Norfolk (in Grand Trunk system).			5,000 00			
Township of Charlotteville	"			20,000 00			
" South Walsingham	"			40,000 00	65,000 00		
City of Ottawa	St. Lawrence and Ottawa	200,000 00				60,000 00	
Town of Prescott	" "	100,000 00				30,000 00	
			300,000 00				90,000 00
" Gananoque	Thousand Islands				10,000 00		
Township of Bayham	Tilsonburg, Lake Erie and Pacific			35,000 00			
" Malahide	" "			4,000 00			
" Houghton	" "			3,000 00			
Town of Tilsonburg	" "			10,000 00			
Village of Vienna	" "			3,000 00			
Town of Ingersoll	" "			20,000 00			
					75,000 00		
City of Toronto	Toronto and Nipissing (in Grand Trunk system).			150,000 00			
Township of Scarboro'	" "			10,000 00			
" Markham	" "			30,000 00			
" Uxbridge	" "			50,000 00			
" Scott	" "			10,000 00			
" Brock	" "			50,000 00			
" Eldon	" "			44,000 00			
" Bexley	" "			15,000 00			
" Somerville	" "			15,000 00			

* Amount returned has realized, balance has lapsed, see return of 1875.

No. 12.—STATEMENT of Aid granted to Railways by Municipalities—*Continued.*

Municipalities.	Name of Railway	Loan.	Total.	Bonus.	Total.	Subscriptions to Shares or Bonds.	Total.
ONTARIO—*Con.*		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Townships of Luxton, Digby and Langford	Toronto and Nipissing (in Grand Trunk system).			12,500 00			
Town of Uxbridge	" "			2,000 00			
					*376,702 59		
Township of Albion	Toronto, Grey and Bruce (in Can. Pac. system).			40,000 00			
" Caledon	" "			45,000 00			
" Mono	" "			45,000 00			
" Amaranth	" "			30,000 00			
" Arthur	" "			35,000 00			
Town of Orangeville	" "			15,000 00			
" Mount Forest	" "			20,000 00			
City of Toronto	" "			350,000 00			
County of Grey (Group)	" "			300,000 00			
Town of Owen Sound	" "			5,000 00			
Township of Minto	" "			15,000 00			
" Howick	" "			35,000 00			
Townships of Gorrie and Wroxeter	" "			5,000 00			
Village of Teeswater	" "			5,000 00			
Township of Culross	" "			38,000 00			
" Turnbury	" "			5,000 00			
	Toronto, Hamilton and Buffalo, comprising Brantford, Waterloo and Lake Erie				988,000 00		
City of Brantford				25,000 00			
Township of Oakland	" "			9,000 00			
" Waterford	" "			2,500 00			
City of Hamilton	" "			225,000 00			
Township of South Grimsby	" "			4,000 00			
					265,500 00		
Town of Lindsay	Victoria (in Grand Trunk system)			85,000 00			
Village of Fenelon Falls	" " "			25,000 00			
Townships of Verulam and Somerville	" " "			22,000 00			
County of Haliburton	" " "			54,000 00			
					186,000 00		
Township of Woolwich	Waterloo Junction (in Grand Trunk system)			28,000 00			
Section of Peel	" "			7,000 00			

Village of Elmira	Waterloo Junction (in Grand Trunk system)			10,000 00			
" St. Jacobs	" "			2,000 00			
					47,000 00		
Fergus	Wellington, Grey and Bruce			10,000 00			
Peel	" "			40,000 00			
Elora	" "			10,000 00			
Maryboro'	" "			40,000 00			
Nichol	" "			10,000 00			
Wallace	" "			35,000 00			
Minto	" "			55,000 00			
Bruce	" "			278,000 00			
Howick	" "			20,000 00			
Listowel	" "			15,000 00			
Grey	" "			35,000 00			
Elma	" "			30,000 00			
Morris	" "			30,000 00			
W. Wawanosh	" "			18,000 00			
Ashfield	" "			10,000 00			
Turnbury	" "			28,000 00			
Kincardine	" "			8,000 00			
					682,000 00		
City of London	West Ontario Pacific				25,000 00		
Town of Whitby	Whitby, Port Perry and Lindsay (in Grand Trunk system)			70,000 00			
Township of Whitby	" "			15,000 00			
" Reach	" "			30,000 00			
" Scugog	" "			2,000 00			
County of Victoria	" "			85,000 00			
Village of Port Perry	" "			20,000 00			
Manufacturing Co	" "			94 93			
					222,094 93		
QUEBEC.			1,632,854 00				
					10,100,843 80		1,211,500 00
Caplin	Baie des Chaleurs (now in Atlantic and Lake Superior system)			5,000 00			
New Richmond	"			6,000 00			
Maria	"			6,000 00			
Carleton	"			6,000 00			
Nouvelle and Shoolbred	"			6,000 00			
New Carlisle	"			6,000 00			
Paspebiac	"			3,000 00			
Hamilton	"			2,500 00			
					40,500 00		
Parish of St. Antoine	Great Eastern			10,000 00			
" St. Denis	"			10,000 00			
					20,000 00		
Village St. Andrews	Ottawa Valley (in Atlantic & Lake Superior)				10,000 00		
Farnham	Canadian Pacific				20,000 00		

No. 12.—STATEMENT of Aid granted to Railways by Municipalities—*Continued.*

Municipalities.	Name of Railway.	Loan.	Total.	Bonus.	Total.	Subscriptions to Shares or Bonds.	Total.
QUEBEC—*Continued.*		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Town of Nicolet	Drummond County (now in Intercolonial Ry.)			10,000 00			
Municipality of St. Leonard	"			5,000 00			
					15,000 00		
Parish of St. Sophie	Great Northern of Canada			4,060 00			
Village of New Glasgow	" "			2,000 00			
" St. Elizabeth	" "			6,000 00			
Town of Joliette	" "			35,000 00	47,000 00		
City of Three Rivers	Lower Laurentian (in Great Northern)				25,000 00		
City of Quebec	Great Northern of Canada					200,000 00	200,000 00
County of Compton	International, now in Atlantic and North-west, C.P.R.					225,000 00	225,000 00
Township of Melbourne and Brompton Gore	Missisquoi & Black Riv. Valley, now in Atlantic & North-west, C.P.R.					25,000 00	
Township of Ely	" "					25,000 00	
Township of North Stukely	" "					25,000 00	
" Bolton	" "					25,000 00	
							100,000 00
St. Pie	Lake Champlain and St. Lawrence J (leased to Montreal and Atlantic Ry.)			20,000 00			
L'Ange Gardien	" "			10,000 00			
St. Paul	" "			6,000 00			
Philipsburg	" "			15,000 00			
					51,000 00		
Town of L'Assomption	L'Assomption				1,500 00		
Ascot	Massawippi Valley					40,000 00	
Hatley	"					25,000 00	
							65,000 00
Ormstown	Montreal & Champlain Junction—(Grand Trunk)			10,000 00			
St. Constant	" "			1,800 00			
Ste. Philomène	" "			2,820 00			
Laprairie	" "			1,904 00			
Huntingdon	" "			3,000 00			

St. Isidore	Montreal and Champlain Juncaion —(Grand Trunk)			1,500 00			
Dewittsville	" "			750 00			
					21,774 00		
Municipality of Rigaud	Montreal and Ottawa			2,000 00			
Parish of Rigaud	"			800 00			
Point Fortune	"			2,500 00			
					5,300 00		
Chambly Canton	Montreal and Province line, formerly Montreal, Portland and Boston			15,000 00			
Basin	" "			10,000 00			
					25,000 00		
County of Pontiac	Pontiac Pacific Jct. (now in Ottawa, Northern & Western)			100,000 00			
Village of Shawville	" "			1,000 00			
					101,000 00		
City of Sherbrooke	Quebec Central			50,000 00			
Parish of Dudswell	"			25,000 00			
" Weedon	"			25,000 00			
Township of Garthby	"			3,000 00			
					103,000 00		
City of Quebec	Quebec Bridge				300,000 00		
City of Quebec	Quebec and Lake St. John			12,000 00		220,500 00	220,500 00
Town of Chicoutimi	" " "				12,000 00		
City of Montreal	Quebec, Montreal, Ottawa and Occidental	1,000,000 00					
City of Quebec	" "	1,000,000 00					
" Three Rivers	" "	100,000 00					
County of Ottawa	" "	200,000 00					
St. Sauveur de Québec	" "	25,000 00					
Côte St. Louis	" "	25,000 00					
Village of Ste. Thérèse	" "	12,000 00					
Parish of "	" "	12,000 00					
" St. Jérôme	" "	10,000 00					
Village "	" "	15,000 00					
Ste. Scholastique	" "	10,000 00					
St. Andrews	" "	25,000 00					
St. Jérusalem d'Argenteuil	" "			25,000 00			
			2,434,000 00		25,000 00		
County of Brome	South-eastern (now Montreal and Atlantic)			56,000 00			
Township of Brome	" "			50,000 00			
" Sutton	"			63,000 00			
" Potton	"			25,000 00			
" Farnham	" "			20,000 00			
Village of West Farnham	" "			5,000 00			
" East "	" "			5,000 00			
" Waterloo	" "			30,000 00			
" Drummondville	" "			15,000 00			
County of Drummond	" "			90,000 00			
Township of Wickham	" "			10,000 00			

No. 12.—STATEMENT of Aid granted to Railways by Municipalities—*Concluded.*

Municipalities.	Name of Railway.	Loan.	Total.	Bonus.	Total.	Subscription to Shares or Bonds.	Total.
QUEBEC—*Concluded.*		$ cts.	$ cts.	$ cts	$ cts.	$ cts.	$ cts.
" St. Germain	Southeastern (now Montreal and Atlantic)			15,000 00			
" Sorel	" "			40,000 00			
Village of Actonvale	" "			15,000 00			
" Roxton Falls	" "			15,000 00			
Township of Roxton	" "			20,000 00			
City of Sorel	South Shore, formerly Mont. & Sorel				25,000 00		
Fraserville	Témiscouata				25,000 00		
			2,434,000 00		873,074 00		1,338,500 00
NEW BRUNSWICK.							
Hillsboro', Hopewell and Harvey Parishes	Albert, now Salisbury and Harvey.			40,000 00			
Coverdale, Hillsboro', Hopewell and Harvey Parishes	"			30,000 00			
					70,000 00		
City of St. John	Canadian Pacific				40,000 00		
" Fredericton	Fredericton			50,000 00			
County of York	"			30,000 00			
Parish of St. George	Grand Southern, now New Brunswick Southern			2,000 00	80,000 00		
" Pennfield	" "			500 00			
Lepreau	" "			500 00			
					3,000 00		
Town of Fort Fairfield	New Brunswick			12,000 00			
" Lyndon	"			11,000 00			
					23,000 00		
City of Calais	New Brunswick and Canada.			12,500 00			
" Houlton	" "			22,000 00			
" St. Stephen	" "			13,000 00			
					47,500 00		
Parish of Elgin	Elgin and Havelock				13,000 00		
Town of Campbellton	Restigouche and Western—now International of New Brunswick				5,000 00		
City of St. John	St. John and Maine						60,000 00
					281,500 00		60,000 00

NOVA SCOTIA.							
County of King	Cornwallis Valley (now in Dominion Atlantic)				27,685 00		
Counties of Yarmouth, Digby and Annapolis	Western Counties) Yarmouth and Annapolis (now in Dominion Atlantic)				150,000 00		
Town of Truro	Midland of N.S.			30,000 00			
County of Colchester	"			6,000 00			
County of Pictou	New Glasgow Iron, Coal and Railway Co., (now Nova Scotia Steel Co's Ry.)				36,000 00		
					4,000 00		
Argyle	Halifax & Yarmouth			5,000 00			
Barrington	" "			2,952 46			
Town of Yarmouth	" "			5,922 47			
Yarmouth County	" "			4,764 00			
County of Inverness	Inverness & Richmond (now Inverness Ry. and Coal Co.)				15,389 93		
					100,000 00		
MANITOBA.					333,023 93		
City of Winnipeg	Canadian Pacific			200,000 00			
County of Selkirk	"			35,000 00			
Township of St. Andrews	"			35,000 00			
Town of Morris	"			100,000 00			
					370,000 00		
County of Westborne	Manitoba and Northwestern			75,000 00			
Town of Portage la Prairie	" "			50,000 00			
" Minnedosa	" "			30,000 00			
Municipality of Shoal Lake	" "			20,000 00			
" Birtle	" "			40,000 00			
" Stratholair	" "			600 00			
					215,600 00		
Rapid City	Saskatchewan and Western				10,000 00		
BRITISH COLUMBIA.					595,600 00		
City of New Westminster	Canadian Pacific				37,500 00		
City of Victoria	Victoria and Sidney				125,452 50		
NORTHWEST TERRITORIES.							
Calgary	Canadian Pacific				25,000 00		
Total aid granted by municipalities			4,066,854 00		12,371,994 23		2,610,000 00

NOTE.—For statement of payments of Municipal Aid granted to Railways—See No. 1 Summary statement of Capital.

No. 13.—Summary Statement of Aid granted to Steam Railways constructed, and under construction by Governments and Municipalities—June 30—1906.

	Loan.	Total.	Bonus.	Total.	Subscription to shares or Bonds.	Total.	Grand Total.	
Governments.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	
Dominion	15,664,533 05		182,562,951 03				198,227,484 08	
Ontario	26,000 00		16,702,012 89				16,728,012 89	
Quebec	3,722,956 00		13,987,317 08				17,710,273 08	
New Brunswick			4,132,637 71		300,000 00		4,432,637 71	
Nova Scotia			3,917,620 78				3,917,620 78	
Manitoba	900,000 00		1,016,952 75				1,916,952 75	
British Columbia			121,135 00				121,135 00	
		20,313,489 05		222,440,627 24		300,000 00		243,054,116 29
Municipalities.								
Ontario	1,632,854 00		10,100,843 80		1,211,500 00		12,945,197 80	
Quebec	2,434,000 00		873,074 00		1,338,500 00		4,645,574 00	
New Brunswick			281,500 00		60,000 00		341,500 00	
Nova Scotia			333,023 93				333,023 93	
Manitoba			595,600 00				595,600 00	
British Columbia			162,952 50				162,952 50	
Northwest Territories			25,000 00				25,000 00	
		4,066,854 00		12,371,994 23		2,610,000 00		19,048,848 23
		24,380,343 05		234,812,621 47		2,910,000 00		262,102,964 52

ELECTRIC RAILWAY STATISTICS

OF THE

DOMINION OF CANADA

FOR THE

YEAR ENDED JUNE 30, 1906

(From Sworn returns furnished by the several Railway Companies)

SESSIONAL PAPER No. 20b

SUMMARY of Tables of Electric Railways for the years ended June 30, 1905, and June 30, 1906.

	Comparative Statement.	
	June 30, 1905.	June 30, 1906.
Miles of railway completed (track laid)	793	814
" sidings	35	45
" iron rails in main line	25	3
" steel " "	768	811
" " " double track	186	195
Capital paid (including the three following items)	61,033,321	63,857,970
Government (Dominion and Provincial) bonuses paid	60,800	60,800
Municipal aid paid	173,000	173,000
Miles in operation	793	814
Gross earnings	9,357,125	10,966,872
Working expenses	5,918,194	6,675,038
Net earnings	3,438,931	4,291,834
Passengers carried	203,467,317	237,655,074
Freight carried (tons)	510,350	506,024
Car mileage	45,959,101	50,618,836
Passengers killed	30	12
Number of highway crossings at rail-level with watchman	10	14
" " " without "	273	288
" overhead bridges highway crossings over railway	26	28
" " farm crossings		
" highway crossings under railway	9	9
" farm " "	2	2
" level crossings of other railways	117	124
" junctions with other railways	46	46
" " branch lines	11	13
" power houses (steam power) owned	38	41
" " " hired		
" " (water power) owned	10	12
" " " hired	3	3
" passenger cars (motor) owned	2,278	2,389
" " " hired		
" " (trailers) owned	260	266
" " " hired		
" official cars owned	3	3
" " hired		
" locomotives owned	12	11
" " hired		
" baggage, mail and express cars owned	13	15
" " " " hired		
" cattle and box freight cars owned	14	20
" " " " hired		
" platform cars owned	66	80
" " hired		
" tool cars owned	15	13
" " hired		
" snow ploughs owned	39	43
" " hired		
" snow sweepers owned	77	89
" " hired		
" other rolling stock owned	21	*21

* Includes 2 conductor's vans, 3 coal and dump cars and 16 refrigerator cars.

TOTAL Fatal Accidents for Year ended June 30, 1906.

	Passengers Killed.	Employees Killed.	Others Killed.	Total Killed.
Falling from cars or engines	1			1
Jumping on or off trains in motion	3	2		5
At work on near the track making up trains				
Putting heads or arms out of windows				
Coupling cars				
Collisions, or by trains thrown from track		1	1	2
Struck by engines or cars on highway crossings	4		19	23
Walking, standing, lying, sitting or being on track	3		12	15
Explosions				
Striking bridges				
Other causes	1			1
Total killed	12	3	32	47

ELECTRIC RAILWAYS.

MILEAGE IN PROVINCES FOR THE YEAR ENDING JUNE 30, 1906.

	Miles.
Ontario	441·28
Quebec	198·34
New Brunswick	16·50
Nova Scotia	53·62
Manitoba	32·00
British Columbia	72·00
Total	813·74

ELECTRIC RAILWAYS.

NOMINAL Capital paid up to June 30, 1906.

Provinces.	Miles constructed	Ordinary Share Capital.	Preference Share Capital.	Bonded Debt.	Dominion Government Aid.	Provincial Government Aid.	Municipal Aid.	Capital from other Sources.	Total.
		$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.	$ cts.
Ontario	441·28	16,257,438 00	239,000 00	9,853,325 49	60,800 00		173,000 00	150,668 39	26,734,231 88
Quebec	198·34	10,212,905 00	644,000 00	4,761,333 00					15,618,233 00
New Brunswick	16·50	900,000 00		775,000 00					1,675,000 00
Nova Scotia	53·62	2,304,500 00	234,000 00	1,637,700 00					4,176,200 00
Manitoba	32·00	4,000,000 00		4,000,000 00					8,000,000 00
British Columbia	72·00	2,196,666 00	2,920,000 00	2,263,932 00				273,706 73	7,654,304 73
Totals	813·74	35,871,504 00	4,037,000 00	23,291,290 49	60,800 00		173,000 00	424,375 12	63,857,969 61

No. 2.—Summary Statement of the different descriptions

Number.	Name of Electric Railway.	Length of Line.		No. of Power Houses.				Passenger Cars.			
				Steam Power		Water Power		No. Motor Cars.		No. of Trailer Cars owned.	No. of Official Cars owned.
		Completed.	Under Construction	Owned.	Hired.	Owned.	Hired.	Owned.	Hired.		
1	Berlin and Waterloo 3·12 Leased Line—Berlin and Bridgeport 2·40	5·52		1				8		7	
2	Brantford Street	7·00		1				15			
3	British Columbia	69·00		2		1		89			
4	Cape Breton	12·73		2				9			
5	Cornwall Street	6·00		1		1		8			
6	Egerton Tramway Co., N.S.	7·96		1				5			
7	Galt, Preston and Hespeler. 9·00 Leased Line—Preston to Berlin 7·00	16·00		1				10		5	
8	Grand Valley (Brantford to Paris)	23·25		1	*			8			
9	Guelph Radial	6·00		1				9		3	
10	Halifax Tramway	12·13		1				42		6	
11	Hamilton and Dundas	7·25			*			4			
12	Hamilton, Grimsby and Beamsville	22·00		1				10			
13	Hamilton Radial	24·50		1				13			
14	Hamilton Street	22·00			*			90			
15	Hull	14·50				1		17		4	
16	International Transit Co. (Sault Ste. Marie)	3·30					1	8			
17	Kingston, Portsmouth and Cataraqui	8·00					1	22			
18	Lévis County	10·25		1			1	15			
19	London Street	33·25		1				39		9	
20	Montreal, Park and Island	37·99		2				40			
21	Montreal Street	67·10		3				791			1
22	Montreal Terminal	19·28		1		1		30			
23	Nelson Tramway Co., B.C.	3·00		*				2			
24	Niagara Falls, Park and River	11·85				1		25		16	
25	Niagara, St. Catharines and Toronto	19·94				2		16			
26	Niagara Falls, Wesley Park and Clifton	4·50			*			6			
27	Oshawa	8·02		1				9			
28	Ottawa	22·87				1		115		4	
29	Peterborough Radial	6·00			*			9		4	
30	Port Arthur Street	9·00		1		1		11		1	
31	Port Dalhousie, St. Catharines and Thorold	8·17				1		8			
32	Quebec Railway, Light and Power Co. (Citadel Division)	17·22				1		69			
33	Quebec Railway, Light and Power Co. (Montmorency Division)	25·00				1		8		5	
34	Sandwich, Windsor and Amherstburg	25·18		1				27		4	
35	Sarnia	7·00			*			8		2	
36	Sherbrooke Street	7·00		1				11			
37	South-western Traction Co.	20·00		1				6			
38	St. John, N.B.	13·50		2				41			
39	St. Stephen, N.B.	3·00		1				7			
40	St. Thomas Street	7·50		1				10		4	
41	Sydney and Glace Bay	18·80		1				10			
42	Toronto Street	48 65		2				559		165	1
43	Toronto Suburban	9·06		1				10			
44	Toronto and York Radial	37·97	8·90	3				30		6	1
45	Winnipeg Street	32·00		1				100		20	
46	Woodstock, Thames Valley and Ingersoll	11·50		1				7			
47	Yarmouth Street	2·00		1				3		1	
		813·74	8·90	41		12	3	2,389		266	3

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of Rolling Stock for the Year ended June 30, 1906.

No. of Electric Locomotives owned.	No. of Baggage, Mail and Express Cars owned.	No. of Cattle and Box Freight Cars owned.	No. of Refrigerator Cars.	No. of Platform Cars owned.	No. of Coal and Dump Cars owned.	No. of Conductors' Vans owned.	No. of Tool Cars owned.	No. of Snow Ploughs owned.	No. of Snow Sweepers owned.	Number.	Remarks.
							1			1	
									1	2	
		4		4			3	5	1	3	
								2	1	4	
1				2				1	1	5	
					1		1	2		6	
1	1	2		1		1			1	7	
								1	1	8	*Hired from Brantford Street Ry.
1								1		9	
							1		3	10	
				1						11	*Power supplied by Cataract Power Co.
		3		4				1		12	
		3		11					1	13	
									2	14	" " "
2	1							1	2	15	
									1	16	
		1							2	17	
	1			1				2	3	18	
								1	1	19	
			16	5				1	3	20	
				17			3	3	25	21	
2				2					4	22	
										23	*Power bought.
	1			2						24	
3		2		15		1		2		25	
										26	*Power hired.
				1	2			1		27	
	3						*1	3	8	28	*Salt car.
								1	1	29	*Power hired.
				2			1			30	
										31	
							1	2	6	32	
										33	
	2			4				2		34	
	1									35	*Power hired.
								1		36	
										37	
								3	3	38	
								1	1	39	
										40	
	1							1		41	
		1		2			1		13	42	
				1					1	43	
1	4	4		5				3		44	
								1	3	45	
										46	
								1		47	
11	15	20	16	80	3	2	13	43	89		

No. 3.—Summary Statement of Characteristics of

Number.	Name of Electric Railway.	Length of Line.				Length of Siding.	Length of Double Track.	Weight per Yard.		Number of Ties to Mile.
		Completed. (Rails laid).	Under construction.	Iron Rails.	Steel Rails.			Iron Rails.	Steel Rails.	
								Lbs	Lbs.	
1	Berlin and Waterloo 3·12	5·52			5·52				45–65	2640
	Leased line—Berlin & Bridgeport 2·40									
2	Brantford Street	7·00			7·00				56	2400
3	British Columbia	69·00			69·00		8·00		25–70	2640
4	Cape Breton	12·73			12·73				60	1750
5	Cornwall Street	6·00			6·00	·50			56	
6	Egerton Tramway Co., N.S	7·96			7·96				60	2640
7	Galt, Preston and Hespeler 9·00	16·00			16.00				56	2112
	Leased Line, Preston to Berlin 7·00									
8	Grand Valley (Brantford to Paris)	23·25			23·25				56	2400
9	Guelph Radial	6·00			6·00	·33			56	2640
10	Halifax Tramway	12·13			12·13	·64	1·58		60 & 80	2690
11	Hamilton and Dundas	7·25			7·25				60	2600
12	Hamilton, Grimsby and Beamsville	22·00			22·00	2·00			56 & 65	2347
13	Hamilton Radial	24·50			24·50				80	2600
14	Hamilton Street	22·00			22 00		10·50		60	2640
15	Hull	14·50			14·50	2·00	10·00		56	2640
16	International Transit Co., (Sault Ste. Marie)	3 30			3·30	·26			80	2640
17	Kingston, Portsmouth and Cataraqui	8·00			8·00				56 & 60	2600
18	Lévis County	10·25			10·25	·63			60	2640
19	London Street	33·25			33·25		6·90		56–73	2640
20	Montreal Park and Island	37·99			37·99	2·05	12·75		56	2640
21	Montreal Street	67·10			67·10	9·12	52·81		56–96	2640
22	Montreal Terminal	19·28			19·28	1·50	4·00		56–80	2640
23	Nelson Tramway, B.C	3·00			3·00	·25			45 & 60	2640
24	Niagara Falls, Park and River	11·85			11·85	·89	11·42		56	2640
25	Niagara, St. Catharines and Toronto	19·94			19·94	6·00			80	2640
26	Niagara Falls, Wesley Park and Clifton	4·50			4·50				60	2640
27	Oshawa	8·02			8·02				64	2640
28	Ottawa	22·87			22·87		17·95		52–80	2630
29	Peterborough Radial	6 00			6·00				60	2112
30	Port Arthur Street	9·00			9·00	·56			42 & 56	2640
31	Port Dalhousie, St. Catharines and Thorold	8·17			8 17				50	2640
32	Quebec Railway, Light and Power Co. (Citadel Division)	17·22			17·22		5·00		56 & 72	2640
33	Quebec Railway, Light and Power Co. (Montmorency Division)	25·00			25·00	7·00	6·00		56 & 70	2640
34	Sandwich, Windsor and Amherstburg	25·18			25·18				60 & 85	1800
35	Sarnia	7·00			7·00				45–66	2112
36	Sherbrooke Street	7·00			7·00				60	2000
37	South-western Traction Co.	20·00			20·00	1·00			60	2200
38	St. John, N.B	13·50			13·50				74	2464
39	St. Stephen, N. B	3·00		3·00				48		
40	St. Thomas, Ont	7·50			7·50				65	1700
41	Sydney and Glace Bay	18·80			18·80	·33			60	2640
42	Toronto Street	48·65			48·65	7·12	47·64		73–90	1760
43	Toronto Suburban	9·06			9·06				56 & 72	2112
44	Toronto and York Radial	37·97	8·90		37·97	2·65			56	2650
45	Winnipeg Street	32·00			32·00				56–70	2000
46	Woodstock, Thames Valley and Ingersoll	11·50			11·50				56 & 65	2100
47	Yarmouth Street	2·00			2·00	·12			45	2112
	Totals	813·74	8·90	3·00	810·74	44·93	194·55			

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Roads, &c., for the Year ended 30th June, 1906

Nature of Rail Fastening.	No. of Grain Elevators.	No. of Highway cros'gs at rail level.		No. of overhead Bridges.	Height of overhead bridges above rail level.	No. of h'wy c'gs under r'y.	No. of farm crossings under railway.	Level crossings of other Railways.	No. of Junctions with other Railways.	No. of Junctions with Branch Lines.	Radius of sharpest curve.	No. of feet per mile of heaviest gradient.	Gauge of Railway.		Remarks.
		Guarded.	Not Guarded.											Number.	
					Ft.in						Ft.				
Fish plates			3	1				2	1		50	211	4·8½	1	
								2			50	150	4·8½		
Fish plates			6					1	1		50	253	4·8½	2	
Fish plates and angle bars								7	1		27	630	4·8½	3	
Fish plates								5		4	63	327	4·8½	4	
Fish plates and bolts											50	100	4·8½	5	
Angle Iron								5	2		37	264	4·8½	6	
Straight ties			6					1	1		72	264	4·8½	7	
Atlas joints			16	8					2	1	75	260	4·8½	8	
Fish plates and bolts		2	1					3	2		45	7	4·8½	9	
Splice bars, bolts and nuts											40	581	4·8½	10	
Angle bars			1	1	14·0			2	2		38	158	4·8½	11	
Fish plates and angle bars			33					2	1		127	211	4·8½	12	
Angle bars		2	2	2	16·00			5	2		105	158	4·8½	13	
Fish plates								4	1		40	370	4·8½	14	
"			7					3	2	3	193	264	4·8½	15	
Bonanza joints		1						2	1		50	20	4·8½	16	
Angle bars			55					1	1	3	35	1000	4·8½	17	
Six bolt angle bars								2			46	580	4·8½	18	
Angle and splice bars		3	4	1			2	10			37	320	4·8½	19	
Fish plates and bars				1				5	4		50	264	4·8½	20	
Fish plates				4	29·00	3		15	6		40	633	4·8½	21	
Angle joints			11					12	2		45	422	4·8½	22	
Fish plates											60	633	4·8½	23	
Angle bar plates		1	16	2	14&22				2	1	115	300	4·8½	24	
Continuous rail joint			35	3	22·0	6		2	3		50	182	4·8½	25	
Continuous rail joint		1	19					1	2		50	100	4·8½	26	
Angle bars			28					1	1		80	211	4·8½	27	
Fish plates and angle bars				1	17·0			5			35	422	4·8½	28	
Angle bars								4			50	208	4·8½	29	
Fish plates								1			30	22	4·8½	30	
Continuous rail joint			25	2	25·0			1	1	1	50	150	4·8½	31	
Fish plates		1						1			35	752	4·8½	32	
"			11					1	2		42	1433	4·8½	33	
"								1			33	293	4·8½	34	
"			2										4·8½	35	
"								2			95	739	4·8½	36	
Angle plates												264	4·8½	37	
Angle bars and bolts								2			40	475	4·8½	38	
Not given													4·8½	39	
		2	2	1	13·0						127		4·8½	40	
Angle iron											58	8	4·7	41	
Fish plates								5	2		40	264	4·10½	42	
Angle bars and plates								4	1		35	412	4·10½	43	
Angle bars				1	22·0			2			65	455	4·8½	44	
"											31	4	4·8½	45	
Fish plates			5					1			50	290	4·8½	46	
"		1						1			50	50	4·8½	47	
		14	288	28		9	2	124	46	13					

No. 4.—Summary Statement of the Operations of the

Number.	Name of Electric Railway.	Mileage.	Car Mileage.			Locomotive Mileage.
			Passenger Cars.	Freight Cars.	Total Car Mileage.	
1	Berlin and Waterloo 3·12 Leased Line—Berlin and Bridgeport.. 2·40	5·52	109,200	.....	109,200	....
2	Brantford Street	7·00	80,400	.....	80,400	.... ..
3	British Columbia	69.00	2,649,577	78,290	2,727,867	.....
4	Cape Breton	12·73	324,243	.....	324,243	....
5	Cornwall Street	6·00	188,493	.....	188,493	6,938
6	Egerton Tramway Co., Ltd	7·96	133,503	2,073	135,576	....
7	Galt, Preston and Hespeler 9·00 Leased Line—Preston to Berlin 7·00	16·00	199,531	17,393	216,924	.. .. ..
8	Grand Valley, (Brantford to Paris)	23·25	141,596	.....	141,596	....
9	Guelph Radial	6·00	179,464	2,500	181,964	.....
10	Halifax Tramway	12·13	700,604	.....	700,004	.....
11	Hamilton and Dundas	7·25	93,413	.....	93,413	.....
12	Hamilton, Grimsby and Beamsville	22·00	250,000	38,276	288,276	.....
13	Hamilton Radial	24·50	299,522	.....	299,522	.....
14	Hamilton Street	22·00	1,519,816	.....	1,519,816	.....
15	Hull	14·50	597,620	17,865	525,485	11,651
16	International Transit Co. (Sault Ste. Marie)	3·30	291,476	.....	291,476	.. ..
17	Kingston, Portsmouth and Cataraqui	8·00	187,200	.....	187,200	.....
18	Lévis County	10·25	376,158	.....	376,158	....
19	London Street	33·25	1,262,252	.....	1,262,252	....
20	Montreal, Park and Island	37·99	807,036	6,600	813,636	.....
21	Montreal Street	67·10	14,062,722	.....	14,062,722	.....
22	Montreal Terminal	19·28	576,357	17,250	593,607	....
23	Nelson Tramway Co., B.C	3·00	41,280	.....	41,280	....
24	Niagara Falls, Park and River	11·85	368,926	13,725	382,651	13,725
25	Niagara, St. Catharines and Toronto	19·94	239,586	243,621	483,207	243,621
26	Niagara Falls, Wesley Park and Clifton	4·50	170,498	.....	170,498	.....
27	Oshawa	8·02	31,138	14,557	45,695	14,557
28	Ottawa	22·87	2,810,020	.....	2,810,020	.....
29	Peterborough Radial	6 00	265,485	.....	265,485	.. ..
30	Port Arthur Street	9·00	208,389	.....	208,389	.....
31	Port Dalhousie, St. Catharines and Thorold	8 17	131,267	.....	131,267	.....
32	Quebec Ry., Light and Power Co. (Citadel Div.)	17·22	1,220,254	.....	1,220,254	.....
33	" " " (Montmorency Div.)	25·00	235,247	.....	235,247	235,247
34	Sandwich, Windsor and Amherstburg	25·18	532,850	.....	532,850	.....
35	Sarnia	7·00	133,476	.....	133,476	.....
36	Sherbrooke Street	7·00	246,000	.....	246,000	.....
37	South-Western Traction Co.	20·00	.....	.....	.....	. . ...
38	St. John, N.B.	13·50	674,003	.....	674,003	... .
39	St. Stephen, N.B.	3·00	183,960	.....	183,960	. .....
40	St. Thomas Street	7·50	394,200	.....	394,200	... .
41	Sydney and Glace Bay	18·80	295,995	26,164	322,159	26,164
42	Toronto Street	48·65	13,485,150	.....	13.485,150	.. ..
43	Toronto Suburban	9·06	176,987	.....	176,987	... .
44	Toronto and York Radial	37·97	731,458	50,151	781,609	.....
45	Winnipeg Street	32·00	2,365,974	.....	2,365,974	.....
46	Woodstock, Thames Valley and Ingersoll	11·50	118,645	.....	118,645	....
47	Yarmouth Street	2·00	90,000	.....	90,000	... .
	Totals	813·74	50,090,371	528,465	50,618,836	551,903

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Year and Mileage for the Year ended June 30, 1906.

Total Number of Passengers Carried.	Tons of Freight of 2,000 lbs., Handled.	Average Rate of Speed of Passenger Cars. Miles per Hour.	Average Rate of Speed of Freight Cars. Miles per Hour.	Number.	Remarks.
691,106		7		1	
511,154		10		2	
12,395,582	23,387	9		3	
1,538,341		8		4	
314,657		12		5	
836,307				6	
597,865	73,326	10	6	7	
257,296		15		8	
631,861	12,585			9	
3,403,747		6		10	
395,845	1,600	14		11	
454,128	7,285	15		12	
923,879	3,720	15		13	
6,746,361		12		14	
918,850	24,706	20	25	15	
1,022,014		8		16	
735,469		9		17	
1,344,557		10		18	
5,294,553	1,776	9		19	
2,585,423	20,906	15		20	
73,555,156		8		21	
908,288	74,956	8		22	
101,019		8		23	
1,403,318	68,625	9	7	24	
881,171	95,271	30	15	25	
774,742		10		26	
140,723	84,981			27	
10,741,808		8		28	
639,777		8		29	
1,079,250		15		30	
401,675		8		31	
5,054,223		8		32	
994,874		21		33	
2,053,960		12		34	
533,217		8		35	
1,000,000		10		36	
12,878		26		37	Only operated part of June, 1906.
2,688,989		8		38	
601,686				39	
535,301		10		40	
2,256,348		14		41	
71,944,316		8		42	
668,206		9		43	
2,348,364	12,900	20		44	
14,155,360		10		45	
378,312		15		46	
263,118		8		47	
237,655,074	506,024				

No. 5.—Summary Statement of Description of

Number.	Name of Electric Railway.	Mileage.	Flour.		Grain.		Live Stock.	
			Barrels.	Tons.	Bushels.	Tons.	No.	Tons.
1	Berlin and Waterloo 3·12 Leased Line.—Berlin and Bridgeport 2·40	5·52						
2	Brantford Street	7·00						
3	British Columbia	69·00						
4	Cape Breton	12·73						
5	Cornwall Street	6·00						
6	Egerton Tramway Co., Limited	7·96						
7	Galt, Preston and Hespeler 9·00 Leased Line—Preston to Berlin 7·00	16·00	38,200	3,817	83,370	2,492	360	113
8	Grand Valley (Brantford to Paris)	23·25						
9	Guelph Radial	6·00				425		
10	Halifax Tramway	12·13						
11	Hamilton and Dundas	7·25						
12	Hamilton, Grimsby and Beamsville	22·00			1,000	28	74	30
13	Hamilton Radial	24·50						
14	Hamilton Street	22·00						
15	Hull	14·50			2,100	36	497	235
16	International Transit Co. (Sault Ste. Marie)	3·30						
17	Kingston, Portsmouth and Cataraqui	8·00						
18	Lévis County	10·25						
19	London Street	33·25						
20	Montreal Park and Island	37·99		268		13,549		292
21	Montreal Street	67·10						
22	Montreal Terminal	19·28		41				
23	Nelson Tramway Co., B.C.	3·00						
24	Niagara Falls Park and River	11·85						
25	Niagara, St. Catharines and Toronto	19·94	10,400	1,040	28,100	488	15	8
26	Niagara Falls, Wesley Park and Clifton	4·50						
27	Oshawa	8·02	2,880	288	67,273	1,850	1,533	613
28	Ottawa	22·87						
29	Peterborough Radial	6·00						
30	Port Arthur Street	9·00						
31	Port Dalhousie, St. Catharines and Thorold	8·17						
32	Quebec Railway, Light and Power Co. (Citadel Division)	17·22						
33	Quebec Railway, Light and Power Co. (Montmorency Division)	25·00						
34	Sandwich, Windsor and Amherstburg	25·18						
35	Sarnia	7·00						
36	Sherbrooke Street	7·00						
37	South-western Traction Co. (under construction)	20·00						
38	St. John, N.B.	13·50						
39	St. Stephen, N.B.	3·00						
40	St. Thomas Street	7·50						
41	Sydney and Glace Bay	18·80						
42	Toronto Street	48·65						
43	Toronto Suburban	9·06						
44	Toronto and York Radial	37·97						
45	Winnipeg Street	32·00						
46	Woodstock, Thames Valley and Ingersoll	11·50						
47	Yarmouth Street	2·00						
		813·74	51,480	5,454	181,843	18,868	2,479	1,291

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Freight Carried for the Year ended June 30, 1906.

Lumber of all kinds, Ft. B. M.		Coal and other Fuel.		Manufactured Goods.	All other Articles.	Total Weight Carried.	Number.	Remarks.
Feet.	Tons.	Cords.	Tons.	Tons.	Tons.	Tons.		
							1	
							2	
					23,387	23,387	3	
							4	
							5	
							6	
106,155	1,853		16,158	7,684	41,209	73,326	7	
							8	
	60		5,325	6,775		12,585	9	
							10	
					1,600	1,600	11	
85,000	87			7,140		7,285	12	
					3,720	3,720	13	
							14	
13,525,274	22,491	10	15	1,893	36	24,706	15	
							16	
							17	
							18	
			1,776			1,776	19	
	1,959		2,812	1,637	389	20,906	20	
							21	
3,277,666	12,127			55,913	6,875	74,956	22	
							23	
					*68,625	68,625	24	*Stone and building material.
275,250	7,800		1,240	16,500	68,195	95,271	25	
							26	
3,510,858	6,144	1,253	27,813	16,738	31,535	84,981	27	
							28	
							29	
							30	
							31	
							32	
							33	
							34	
							35	
							36	
							37	
							38	
							39	
							40	
							41	
							42	
							43	
				7,000	5,900	12,900	44	
							45	
							46	
							47	
20,780,203	52,521	1,263	55,139	121,280	251,471	506,024		

No. 6.—Summary Statement of Earnings

Number.	Name of Electric Railway.	Mileage.	Passenger Traffic.	Freight Traffic.	Mails and Express Freight.
			$ cts.	$ cts.	$ cts.
1	Berlin and Waterloo 3·12				
	Leased line—Berlin and Bridgeport 2.40	5·52	28,117 76		911 77
2	Brantford Street	7·00	22,430 17		
3	British Columbia	69·00	648,680 95	40,743 76	1,363 25
4	Cape Breton	12·73	85,204 09	588 34	70 20
5	Cornwall Street	6·00	14,091 26	7,412 84	210 43
6	Egerton Tramway Co., Limited	7·96	37,610 38	493 13	
7	Galt, Preston and Hespeler 9 00				
	Leased line—Preston to Berlin 7·00	16·00	46,816 66	40,030 69	2,799 11
8	Grand Valley (Brantford to Paris)	23·25	38,594 32	1,219 93	
9	Guelph Radial	6·00	25,626 38	1,509 23	
10	Halifax Tramway	12·13	151,386 73		
11	Hamilton and Dundas	7 25	36,032 37	2,134 75	94 28
12	Hamilton, Grimsby and Beamsville	22·00	56,621 75	15,812 67	6,421 31
13	Hamilton Radial	24·50	84,008 31	4,430 26	573 59
14	Hamilton Street	22·00	264,961 53		
15	Hull	14 50	47,736 17	7,809 35	699 99
16	International Transit Co. (Sault Ste. Marie)	3·30	41,403 95		
17	Kingston, Portsmouth and Cataraqui	8·00	25,654 53	716 10	
18	Lévis County	10·25	51,036 85	1,535 57	
19	London Street	33·25	196,239 12	177 60	1,173 67
20	Montreal Park and Island	37·99	202,716 44	3,358 76	
21	Montreal Street	67·10	2,932,254 43		
22	Montreal Terminal	19·28	64,580 28	16,912 08	500 00
23	Nelson Tramway Co., B.C.	3·00	5,334 00		
24	Niagara Falls, Park and River	11·85	131,039 08	14,770 07	186 54
25	Niagara, St. Catharines and Toronto	19·94	87,881 68	50,267 66	851 58
26	Niagara Falls, Wesley Park and Clifton	4·50	34,791 42		
27	Oshawa	8·02	7,956 30	46,727 74	2,294 90
28	Ottawa	22·87	456,197 02		8,030 00
29	Peterborough Radial	6·00	29,430 48		
30	Port Arthur Street	9·00	49,723 20		
31	Port Dalhousie, St. Catharines and Thorold	8·17	20,805 39		
32	Quebec Railway, Light and Power Co. (Citadel Division)	17 22	213,710 66		750 00
33	Quebec Railway, Light and Power Co. (Montmorency Division)	25·00	108,341 77		1,210 16
34	Sandwich, Windsor and Amherstburg	25·18	113,440 47		2,606 04
35	Sarnia	7·00	26,568 10	3,927 93	862 00
36	Sherbrooke Street	7·00	28,000 00		
37	South-western Traction Co.	20·00			
38	St. John, N.B.	13·50	119,842 52		
39	St. Stephen, N.B.	3·00	28,775 35		
40	St. Thomas Street	7·50	18,391 78		
41	Sydney and Glace Bay	18·80	104,568 38	7,011 07	1,257 99
42	Toronto Street	48·65	2,900 181 17		
43	Toronto Suburban	9·06	28,762 20		
44	Toronto and York Radial	37·97	168,618 90	19,178 77	2,000 00
45	Winnipeg Street	32·00	625,863 72		
46	Woodstock, Thames Valley and Ingersoll	11·50	18,915 59	1,345 84	
47	Yarmouth Street	2·00	9,063 37		175 00
	Totals	813·74	10,438,000 98	288,105 14	35,041 81

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for the Year ending June 30, 1906.

Other Sources.	Total Gross Earnings.	Total Net Earnings.	Proportion of Earnings to Working Expenses.	Earnings per Car Mile.	Number.	Remarks.
$ cts.	$ cts.	$ cts.	p. c.	$ cts.		
1,341 25	30,370 78	5.340 86	121	28	1	
6,552 75	28,982 92	2,979 87	113	36	2	
7,517 51	698,305 47	247,787 12	156	25	3	
2,131 80	87,994 43	32,802 17	158	27	4	
1,701 94	23,416 47	2,271 86	110	12	5	
.....	38,103 51	12,975 63	152	28	6	
1,444 25	91,090 71	28,559 19	145	42	7	
2,347 29	42,161 54	5,169 99	137	30	8	
2,897 29	30,032 90	9,412 33	137	15	9	
647 69	152,034 42	22,044 99	117	21	10	
3,351 19	41,612 59	22,497 09	213	44	11	
1,695 78	80,551 51	21,015 92	140	28	12	
2,867 96	91,880 12	42,672 24	186	31	13	
1,700 00	266,661 53	98,343 16	154	17	14	
24,992 84	81,229 35	6,465 34	108	15	15	
620 42	42,024 37	9,051 84	127	14	16	
1,184 35	27,554 98	—2,660 04	85	10	17	
256 18	52,828 60	4,489 45	117	14	18	
1,271 05	198,861 44	52,434 23	136	15	19	
1,241 96	207,311 16	59,624 28	138	25	20	
45,013 01	2,977,267 44	1,218,660 64	166	20	21	
6,543 56	88,535 92	5,237 82	105	15	22	
.....	5,334 00	—6,230 81	46	13	23	
8,327 01	154,322 70	69,360 96	181	40	24	
1,743 14	140,744 06	49,132 04	153	29	25	
.....	34,791 42	19,902 69	234	20	26	
1,531 83	58,510 77	17,134 14	141	1 28	27	
26,410 65	490,637 67	210,416 04	180	18	28	
270 36	29,700 84	5,723 32	124	11	29	
2,261 24	51,984 44	19,682 62	160	25	30	
.....	20,805 39	9,240 63	180	15	31	
.....	214,460 66	66,463 84	145	17	32	
9,935 53	119,487 46	44,822 67	160	51	33	
5,953 40	121,999 91	55,241 35	182	22	34	
5,295 72	36,653 75	6,118 92	120	27	35	
....	28,000 00	11,015 00	156	11	36	
.....	.....	.. ..	.....	.....	37	Railway only opened for traffic, June '06.
400 00	120,242 52	25,669 91	127	18	38	
324 05	29,099 40	398 89	101	15	39	
404 05	18,795 83	2,535 98	112	.....	40	
291 64	113,129 08	51,461 15	183	35	41	
15,231 02	2,915,412 19	1,338,644 51	181	21	42	
2,045 72	30,807 92	3,836 51	114	17	43	
2,084 22	191,881 89	74,277 29	163	24	44	
1,263 33	627,127 05	297,733 17	190	26	45	
1,562 70	21,824 13	9,976 39	184	18	46	
3,068 36	12,306 73	2,101 14	121	14	47	
205,724 04	10,966,871 97	4,291,834 33				

No. 7.—Summary Statement of Operating

Number.	Name of Electric Railway.	Mileage	Maintenance of Way Buildings, &c.	Cost of Motive Power.	Maintenance of Cars.
			$ cts.	$ cts.	$ cts.
1	Berlin and Waterloo 3·12 Leased line—Berlin and Bridgeport.. 2·40	5·52	153 65	5,265 57	2,824 83
2	Brantford Street	7·00	12,395 56		
3	British Columbia	69·00	31,969 47		41,861 83
4	Cape Breton	12·73	2,597 85	17,327 97	3,974 04
5	Cornwall Street	6·00	2,706 68	1,900 57	4,139 67
6	Egerton Tramway Co., Limited	7·96	926 33	7,647 78	4,309 30
7	Galt, Preston and Hespeler 9·00 Leased line—Preston to Berlin 7·00	16·00	11,710 54	24,658 48	
8	Grand Valley (Brantford to Paris)	23 25		22,093 14	
9	Guelph Radial	6·00	1,424 56	4,088 17	3,555 96
10	Halifax Tramway	12·13	33,637 00	21,628 50	21,175 10
11	Hamilton and Dundas	7·25	1,943 24	2,802 39	1,704 40
12	Hamilton, Grimsby and Beamsville	22·00	5,832 51	18,806 29	6,711 88
13	Hamilton Radial	24·50	4,403 39	11,368 42	5,303 94
14	Hamilton Street	22·00	6,270 74	40,578 68	15,700 48
15	Hull	14·50	12,389 62	17,520 75	12,763 15
16	International Transit Co. (Sault Ste. Marie)	3·30	2,310 97	6,000 00	5,169 10
17	Kingston, Portsmouth and Cataraqui	8·00	2,564 91	4,609 53	
18	Lévis County	10·25	7,322 35	7,980 38	4,908 91
19	London Street	33·25	11,522 66	25,743 92	28,036 97
20	Montreal Park and Island	37·99	16,051 13	41,782 31	14,121 51
21	Montreal Street	67 10	172,422 05	315,097 65	206,579 73
22	Montreal Terminal	19·28	5,615 29	19,143 15	8,925 90
23	Nelson Tramway Co., B.C	3·00	25 00	2,406 00	1,771 98
24	Niagara Falls Park and River	11·85	17,902 59	11,714 69	6,404 32
25	Niagara, St. Catharines and Toronto	19·94	13,694 81	7,912 03	8,007 37
26	Niagara Falls, Wesley Park and Clifton	4·50	1,732 63	1,622 72	625 54
27	Oshawa	8·02	7,603 65	15,248 87	2,870 12
28	Ottawa	22·87	26,177 80	8,955 95	38,010 90
29	Peterborough Radial	6·00	1,650 15	1,600 00	4,050 23
30	Port Arthur Street	9·00	6,103 29	4,717 63	6,629 09
31	Port Dalhousie, St. Catharines and Thorold	8·17	1,894 15	3,006 96	986 13
32	Quebec Railway, Light and Power Co. (Citadel Division)	17·22	14,465 79	21,997 89	84,377 07
33	Quebec Railway, Light and Power Co. (Montmorency Division)	25·00	16,401 55	14,663 78	5,109 26
34	Sandwich, Windsor and Amherstburg	25·18	8,563 76	19,134 17	3,610 08
35	Sarnia	7·00	1,590 26		3,270 25
36	Sherbrooke Street	7·00	14,405 00	730 00	1,000 00
37	South-western Traction	20 00			
38	St. John, N.B	13·50	8,732 35	16,532 90	44,426 75
39	St. Stephen, N.B	3·00	3,108 15	6,750 81	3,540 84
40	St. Thomas Street	7·50	1,814 65	902 60	2,510 20
41	Sydney and Glace Bay	18·80	5,367 50	19,069 63	9,588 15
42	Toronto Street	48·65	79,549 77	311,233 73	226,781 82
43	Toronto Suburban	9·06	2,083 91	7,746 55	4,322 11
44	Toronto and York Radial	37·97	12,289 26	33,433 04	13,493 66
45	Winnipeg Street	32·00	17,285 38	105,142 01	30,951 89
46	Woodstock, Thames Valley and Ingersoll	11·50		5,199 71	
47	Yarmouth	2·00	156 00	6,301 15	356 01
	Totals	813·74	608,767 90	1,242,075 47	894,460 53

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Expenses for the Year ended June 30, 1906.

General and Operating Charges.	Total.	Cost of Operating per Car Mile.	Number.	Remarks.
$ cts.	$ cts.	Cts.		
16,785 87	25,029 92	23	1	
13,607 49	26,003 05	32	2	
376,687 05	450,518 35	16	3	
31,292 40	55,192 26	17	4	
12,388 69	21,144 61	11	5	
12,244 47	25,127 88	18	6	
26,162 50	62,531 52	29	7	
14,898 41	36,991 55	21	8	
11,551 88	20,620 57	11	9	
53,548 83	129,989 43	18	10	
12,665 41	19,115 50	20	11	
28,184 91	59,535 59	20	12	
28,132 13	49,207 88	16	13	
105,768 47	168,318 37	11	14	
32,090 49	74,764 01	14	15	
19,492 46	32,972 53	11	16	
23,040 58	30,215 02	12	17	
28,127 51	48,339 15	13	18	
81,123 66	146,427 21	11	19	
75,731 93	147,686 88	18	20	
1,064,507 37	1,758,606 80	12	21	
49,613 76	83,298 10	14	22	
7,361 83	11,564 81	28	23	
18,940 14	84,961 74	22	24	
61,997 81	91,612 02	19	25	
10,907 84	14,888 73	08	26	
15,653 99	41,376 63	90	27	
207,076 98	280,221 63	10	28	
16,677 14	23,977 52	09	29	
14,851 81	32,301 82	15	30	
5,677 52	11,564 76	08	31	
27,156 07	147,996 82	12	32	
38,490 20	74,664 79	32	33	
35,450 55	66,758 56	12	34	
25,674 32	30,534 83	22	35	
850 00	16,985 00	07	36	
.....	.....	.....	37	Only operated at the end of June, 1906. No record of figures.
24,880 61	94,572 61	14	38	
15,300 71	28,700 51	15	39	
11,032 40	16,259 85	.....	40	
27,642 65	61,667 93	19	41	
959,202 36	1,576,767 68	11	42	
12,818 84	26,971 41	15	43	
58,388 64	117,604 60	15	44	
176,014 60	329,393 88	14	45	
6,648 03	11,847 74	10	46	
3,392 43	10,205 59	11	47	
3,929,733 74	6,675,037 64			

No. 8—Summary of Accidents for

Number.	Name of Electric Railway.	Mileage	Passengers, Employes or Others.	Fell from Cars.		Jumping on or off Cars.		At work on or near track making up Trains.	
				Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
1	Berlin and Waterloo Street, leas'd line Berlin and Bridgeport	3·12 2·40	Others						
2	British Columbia	69·00	Passengers Employees Others	1	2 2		25 1		
3	Cape Breton	12·73	Passengers						
4	Egerton Tramway Co	7·96	Passengers Employees Others		5				
5	Galt, Preston and Hespeler Leased line—Preston to Berlin	9·00 7·00	Employees Others			 1			
6	Guelph Radial	6·00	Employees						
7	Halifax Tramway	12·13	Passengers		3		2		
8	Hamilton and Dundas Street	7·25	Passengers						
9	Hamilton, Grimsby and Beamsville	22·00	Passengers Employees						
10	Hamilton Radial	24·50	Passengers		1	1	1		
11	Hamilton Street	22·00	Passengers		4		22		
12	Hull	14·50	Passengers Others		1		1		
13	Lévis County	10·25	Passengers Others		3				
14	London Street	33·25	Passengers Employees Others		1		20 10		
15	Montreal Park and Island	37·99	Passengers Others				6 1		
16	Montreal Street	67·10	Passengers Employees Others			1	318 11		
17	Montreal Terminal	19·28	Passengers		1				
18	Nelson Tramway, B.C. (no return)								
19	Niagara Falls Park and River	11·85	Passengers Others				2		
20	Niagara, St. Catharines and Toronto	19·94	Others		2				1
21	Oshawa	8·02	Employees		1				
22	Ottawa	22·87	Passengers Employees Others		2 3		23		
23	Port Arthur	9·00	Passengers Others			1			
24	Port Dalhousie, St. Catharines and Thorold	8·17	Employees						
25	Quebec Railway, Light and Power Co. (Montmorency Division)	25·09	Passengers Employees		1		2		
26	Sandwich, Windsor and Amherstburg	25·18	Passengers Others						
27	Sarnia Street	7·00	Others						
28	Saint John, N.B	13·50	Passengers Others						
29	Sydney and Glace Bay	18·80	Others						
30	Toronto Railway	48·65	Passengers Employees Others		49 9	1	413 5		
31	Toronto and York Radial	37·97	Others						
32	Winnipeg	32·00	Passengers Employees				9		
	Totals			1	90	5	872		1

the Year ended June 30, 1906.

Putting arms or heads out of Windows.		Coupling Cars.		Collisions or by Cars thrown from Track.		Struck by Cars on Highway Crossings.		Walking, standing, lying or being on Track.		Striking Bridges.		Other Causes.		Totals.		
Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Number.
							1								1	1
					17								1		44	
					1						1		6		11	2
							3	1	9					1	12	
								2	1					2	1	3
															5	
													1		1	4
									1				3		4	
							2								2	5
			1											1	1	6
															5	7
							2								2	8
					7										7	9
					1										1	
						1	3							2	5	10
					2	2	8						14	2	50	11
					10										12	12
									3						3	
												1		1	3	13
									5						5	
	1				3								2		27	
					1										1	14
					5				11				39		65	
															6	
						2								2	1	15
															318	
														1	11	16
						13	160							13	160	
					4										5	17
																18
													1		3	19
							1						1		2	
					3	1								1	6	20
			1		2										4	21
													3		28	
					1						1		4		9	22
				1				1	27				5	2	32	
														1		
								1						1		23
				1										1		24
															2	
													1		2	25
					2				1						3	
							1								1	26
						1								1		27
													1		1	
													11		11	28
								2	1					2	1	29
					40								46	1	548	
			5		6		8						50		83	30
						2	59	6	71				7	8	137	
								2						2		31
						1	1							1	10	32
					1										1	
	1		7	2	106	23	249	15	130		2	1	195	47	1,653	

FIRST REPORT

OF THE

BOARD OF RAILWAY COMMISSIONERS FOR CANADA

MARCH 31, 1906

(February 1, 1904 to March 31, 1906)

PRINTED BY ORDER OF PARLIAMENT

OTTAWA
PRINTED BY S. E. DAWSON, PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1907

[No. 20c—1907.]

THE BOARD OF RAILWAY COMMISSIONERS FOR CANADA

A. C. KILLAM, Chief Commissioner.

Hon. M. E. BERNIER, Deputy Chief Commissioner.

JAMES MILLS, Commissioner.

A. D. CARTWRIGHT, *Secretary.*

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REPORT

OF THE

BOARD OF RAILWAY COMMISSIONERS FOR CANADA.

OTTAWA, Ont., March 31, 1906.

To His Excellency the Governor in Council:

The Board of Railway Commissioners for Canada has the honour to submit its first report covering a period of twenty-six months from the 1st of February, 1904, to the 31st March, 1906, and in this connection deems it desirable to call attention to the more salient features of the Railway Act, 1903.

COMMISSION.

By an Act of the Parliament of Canada (3 Ed. 7, Cap. 58), intituled, 'An Act to consolidate the law respecting railways,' commonly known as 'The Railway Act, 1903,' the Board of Railway Commissioners for Canada was created; the Act came into force on the 1st of February, 1904, by proclamation of the Governor General, in accordance with a notice published in the *Canada Gazette* as required by the Act.

The Act provides for the appointment by the Governor in Council of three Commissioners, who are to hold office, during good behaviour for a period of ten years from the date of appointment; each of whom , on the expiration of his term of office, to be eligable for re-appointment, until and unless he has then reached the age of seventy-five years, one of such commissioners to be appointed Chief Commissioner, and another Deputy Chief Commissioner of the Board; and in the absence of the Chief Commissioner, or his inability to act, the Deputy Chief to take the place and exercise the powers of the Chief Commissioner. Not less than two Commissioners are to attend at the hearing of every case. The Chief Commissioner, when present, is to preside; and his opinion upon any question which in the opinion of the Commissioners is a is a question of law, is to prevail. In any case where there is no interested party and no notice to be given to any interested party. one Commissioner is empowered to act alone for the Board.

Provision is also made that, whenever circumstances render it expedient to hold sittings without the city of Ottawa, the Board may hold the same in any part of Canada. Besides the regular staff attached to the Board, which is appointed by the Governor in Council on the recommendation of the Board, appointments may be made from time to time and as occasion requires, of experts, or persons having a technical or special knowledge of matters in question, to assist the Board in an advisory capacity.

JURISDICTION AND GENERAL POWERS.

The Board has full jurisdiction to inquire into, hear, and determine any application by, or on behalf of, any party interested; and the Act is made to apply:

(*a*) To all persons, companies, and railways (other than Government Railways) within the legislative authority of the Parliament of Canada;

(*b*) To any railway, the construction or operation of which is authorized by special Act passed by the legislature of any province, which is declared by any special Act of the Parliament of Canada to be a work for the general advantage of Canada; and

(*c*) To every railway, steam or electric street railway, the construction or operation of which is authorized by special Act passed by the legislature of any province, which connects with or crosses a railway which, at the time of such connection or crossing, is subject to the legislative authority of the Parliament of Canada, in respect only to such connection or crossing, or to through traffic thereon, or to anything appertaining thereto, and also in respect to the provisions contained in the Act relating to offences and penalties, navigable waters, and criminal matters.

By this Act, the Railway Committee of the Privy Council was abolished and the powers and duties formerly vested in and exercised by it are conferred upon the Board.

PRACTICE AND PROCEDURE.

The practice and procedure of the Board, as prescribed by its Rules and Regulations, other than the rules affecting the same contained in the Railway Act, 1903, will be found in Appendix 'B.' These Rules and Regulations came into force and effect on the 18th day of October, 1904, and were published in the *Canada Gazette* on the 26th November, 1904.

LOCATION OF LINE OF RAILWAY.

The Board, under and by virtue of section 122 *et seq.* of the Railway Act, 1903, has to approve of all location plans of railways after the approval of the general route map by the Minister of Railways; also of any deviations, changes, or alterations.

TAKING AND USING OF LANDS.

By section 137, the Board is empowered to grant authoritiy to take and use additional lands for railway purposes.

BRANCH LINES.

The construction of branch lines, or spurs, of a railway not exceeding in any one case six miles in length, from the main line of the railway or from any branch thereof, is provided for in sections 175 and 176 of the Act.

CROSSINGS AND JUNCTIONS.

The granting of authority for the crossing of one line of railway by another and the junction of one line with another, are provided for in Section 177 *et seq.* of the Act.

HIGHWAY CROSSINGS.

The granting of authority to construct a railway upon, along, or across an existing highway, or to construct a highway across an existing railway, as provided for by Section 184 *et seq.* of the Act, 1903. Provision is also made for authorising the construction of new highways across railways and for the protection of highway crossings.

TELEGRAPH, TELEPHONE, AND OTHER LINES AND WIRES.

The granting of authority for the carrying of telegraph and telephone lines or wires for the conveyance of heat, light, power, or electricity across the railway, is provided for by Section 194 of the Act; also for the connection of municipal telephone systems with or within any station or premises of a railway company.

DRAINAGE.

The granting of authority for providing the necessary drainage facilities across and under the railway, and for the proper drainage of land adjoining, is provided for by Sections 196 and 197 of the Act.

FARM CROSSINGS.

The construction of suitable farm crossings, fences, gates, and cattle guards, is required by Sections 198 *et seq.* of the Act.

BRIDGES, TUNNELS, AND OTHER STRUCTURES.

The construction of bridges, tunnels, and other structures over, through, or under any railway is dealt with by sections 202 *et seq.* of the Act, and various duties and powers in respect thereof are assigned to the Board.

INSPECTION OF RAILWAYS.

Sections 207 *et seq.* of the Act provide for the inspection of railways, and require the leave of the Board to be given before a railway can be opened for traffic.

ACCIDENT.

Under Sections 235-6 accidents upon railways are required to be reported to the Board, and the Board may appoint inspectors to make inquiry respecting the same.

BY-LAWS, RULES, AND REGULATIONS.

Section 246 of the Act requires that by-laws, rules, and regulations, with certain exceptions, shall be submitted to the Governor in Council for approval, upon a report of the Board.

FACILITIES—DISCRIMINATION.

Sections 214 and 252 *et seq.* deal with the liability of a railway company to furnish facilities and accommodation for traffic, and forbid unjust discrimination and undue preferences.

CLASSIFICATION.

By Section 255 the Board is empowered to prescribe or authorize the classification of freight traffic.

TARIFFS—TOLLS.

Sections 256 *et seq.* relate to traffic of tolls and the powers of the Board in respect thereof.

GENERAL PROVISIONS RESPECTING CARRIAGE.

Section 275 deals with carriage of traffic generally, and authorizes the Board to prescribe the terms and conditions under which traffic may be carried.

It will thus be seen from the foregoing brief summary that the scope of the Board is very wide, and that the matters to be dealt wih by the Board embrace practically everything appertaining to or connected with a railway.

The Board, as originally constituted, consisted of the Honourable A. G. Blair, Chief Commissiioner; Honourable M. E. Bernier, Deputy Chief Commissioiner; and Mr. Commissioner Mills. Mr. Blair took office on the 1st of February, 1904, and resigned on the 18th October of the same year. On the 7th day of February, 1905, the vecancy in the Chief Commissionership was filled by the appointment of Honourable A. C. Killam, a judge of the Supreme Court of Canada, he having resigned the latter office to take over the duties of Chief Commissioner of the Board.

PUBLIC SITTINGS OF THE BOARD.

The Board held its first public sitting in temporary premises in the Western Block of the Parliament Builings, in the city of Ottawa, on the 9th day of February, 1904.

Public sititngs of the Board were held at the following times and at the following places in the various provinces of the Dominion of Canada:—

Province of Ontario.

Almonte—29th March, 1906.
Brantford—26th April, 1905.
Chatham—7th December, 1905.
Galt—6th November, 1905.
Guelph—17th February, 1905.
Lindsay—12th June, 1905.
Niagara Falls—16th March, 1905.
Port Hope—30th June, 1905.
Sarnia—6th December, 1905.
Stratford—4th December, 1905.
St. Thomas—14th March, 1905.
Windsor—8th December, 1905.

Ottawa—9th, 16th, 19th, 29th February, 1904.
8th, 11th, 15th, 22nd, 25th, 29th March, 1904.
5th, 8th, 15th, 26th, 28th April, 1904.
6th, 7th, 13th, 18th, 26th, 27th May, 1904.
3rd, 7th, 9th, 16th, 17th June, 1904.
2nd, 5th, 6th, 14th, 18th, 22nd, 30th July, 1904.
10th, 11th, 12th, 13th, 14th, 18th, 19th, 20th, 21st, 27th October, 1904.
4th November, 1904.
9th, 20th, 27th December, 1904.
5th, 26th January, 1905.
7th, 14th February, 1905.
21st, 23rd March, 1905.
11th, 13th, 14th April, 1905.
5th, 16th, 25th, 30th May, 1905.
6th, 7th, 13th, 20th, 27th June, 1905.
29th August, 1905.
1st, 4th September, 1905.
14th, 28th November, 1905.
1st December, 1905.
31st January, 1906.
1st, 6th, 13th February, 1906.
6th, 7th, 20th, 21st, 27th March, 1906.

Toronto—20th, 21st, 22nd, 23rd, 25th, 28th June, 1904.
22nd December, 1904.
16th February, 1905.
18th, 31st March, 1905.
25th April, 1905.
7th November, 1905.
11th December, 1905.

Province of Quebec.

Montreal—24th February, 1905.
19th May, 1905
9th November, 1905.
14th December, 1905.

Rivière du Loup—April 19th, 1905.

Province of Manitoba.

Carberry—11th August, 1904.
Winnipeg—8th August, 1904.
19th, September, 1904.
11th, 12th, 13th September, 1905.
9th, 10th, 11th, 12th, 14th October, 1905.

Province of Alberta.

Calgary—15th September, 1904.
Edmonton—14th September, 1904.
McLeod—12th September, 1904.
Medicine Hat—16th August, 1904.
Moosejaw—16th September, 1904.

Province of Saskatchewan.

Prince Albert—13th August, 1904.
Regina—15th August, 1904; 5th October, 1905.

Province of British Columbia.

Nelson—8th September, 1904; 27th September, 1905.
New Westminster—29th August, 1904; 18th September, 1904; 19th September, 1905.
Revelstoke—6th September, 1904.
Vancouver—25th August, 1904; 21st, 22nd September, 1905.
Vernon—5th September, 1904.
Victoria—3rd September, 1904.

Province of New Brunswick.

St. John—18th April, 1905.

The total number of public sittings at various places in the Dominion of Canada, as above set forth, was 144, at which sittings 354 applications were heard. The various applications are set forth in Appendix 'C.'

Attention might be called to the fact that the sittings of the board embraced points widely separated, from St. John, N.B., on the Atlantic, to Victoria, B.C., on the Pacific coast; and that the applications heard by the board were correspondingly diversified, embracing, as they did, a variety of matters dealt with by the Railway Act, 1903. The proceedings in certain cases, such as those relating to unreasonableness of rates, discrimination, demmurage charges, freight classification, &c., affected the public generally, and were among the most important of the matters dealt with by the board; while, on the other hand, matters relating to the construction or operation of railways, railway crossings and junctions, highway crossings, farm crossings, the expropriation of lands for railway purposes, &c., may be, and often are, of very great importance to localities or individuals.

JUDGMENTS OF THE BOARD.

The summary of judgments delivered by the board, covering a period of twenty-six months, from February 1, 1904, to March 31, 1906, prepared by the law clerk, Mr. A. G. Blair, jr., will be found under Appendix 'D.'

This summary, it is hoped will prove of considerable value to those who are interested in the practical working out of the Railway Act, 1903.

ROUTINE WORK OF THE BOARD.

Record Branch.

This department is under the immediate supervision of the secretary of the board.

It is hardly possible to over-estimate the importance, not only to the board but to the public, of having the board's records kept in a complete and systematic manner, not only for the purpose of assisting the board in the despatch of business but also in order to enable the public to obtain information promptly and without undue delay.

In referring to the records, attention might be called to the fact that the board superseded the Railway Committee of the Privy Council, and that all the previous records relating to the proceedings of the Railway Committee of the Privy Council passed into the custody of the board, covering a period of nearly forty years. It will thus be seen that from its inception the keeping of the records of the board assumed large proportions, and necessitated at the outset the employment of a thoroughly skilled and efficient record clerk and staff.

By reference to the subjoined table, it will be observed that the number of applications show a steady and marked increase, as also the general filings and orders issued by the board. The present rate of increase will necessitate the providing from time to time of increased accommodation and additional staff, and it is highly desirable that ample provision be made for future requirements in the matter of accommodation.

The docket work consists, mainly, of the filing and recording in the official dockets of all applications or complaints received by the board, as well as recording the orders made and inquiries and investigations instituted. In many instances where the complaint is made by a person not versed in the usual methods of procedure under the Railway Act, the board takes the matter up and furnishes copies of the complaint made, enters into communication with the railway company or companies interested, and endeavours to have the complaint adjusted without the necessity of a public hearing. In certain instances it has been found that the complaint was ill-founded, and was due to some misapprehension on the part of the complainant. It has not been found practicable in this report to classify the matters that have been dealt with in this way, but the number is large.

With regard to the cases heard by the board at public sittings, during the twenty-six months covered by this report, over thirty-eight thousand folios of testimony was taken before the board at these hearings. Four copies of the testimony are made.—three for the use of the commissioners and one for the secretary and public reference.

The following is a table of formal applications received under the Act, documents filed, including informal complaints not included under applications, and orders issued by the board:—

——	1st Feb., 1904 To 31st March, 1905.	1st April, 1905. To 31st March, 1906.	Totals.
Applications	1,009	1,487	2,496
Filings	10,870	17,653	28,523
Orders	405	617	1,022

TRAFFIC DEPARTMENT.

This is a separate and distinct department from the Record Branch, although many of the matters pertaining to the traffic department, such as applications and orders relating to traffic matters, are recorded in what may be called 'the Record Branch proper.'

The department is under the immediate supervision of a Chief Traffic Officer, who has under him a considerable staff. A statement of the freight and passenger schedules filed with the board between February 1, 1904, and March 31, 1906, will be found in conjunction with the report of the Chief Traffic Officer under Appendix E at page .

ENGINEERING DEPARTMENT.

This, like the Traffic Department, has a separate system for the receiving and filing of the plans relating to the location of railway lines, building of bridges, crossings, &c., and is under the supervision of a Chief Engineer and three assistants. A list of examinations and inspections made by the Engineering Department of the board, covering a period of twenty-six months, will be found under Appendix F at page .

ACCIDENT BRANCH.

This important branch is under the supervision of an Inspector of Accidents, whose duty it is to hold investigations, under the direction of the board, of all railway accidents.

At first two inspectors, Mr. Duval and Mr. Lalonde, were appointed for this work, but through Mr. Duval's resignation the board was left with only one. It has been found impossible for one man to investigate all railway accidents throughout Canada. It is thought by the board that on account of distances to be travelled, it will be necessary to have inspectors stationed at different points in Canada, and the board has in contemplation the appointment of several inspectors who, in addition to investigating circumstances attending accidents, will also examine rolling stock and equipment and report generally respecting the manner in which various provisions of the Railway Acts and the regulations of the board are being observed. The board did instruct one of its engineers, who has recently been constantly engaged in the western portion of the Dominion, to examine into and report upon questions in that portion of the country, but it has been found that his services are so continuously required for engineering matters that he could not properly attend to the investigation of accidents also, and the board feels that it will soon be necessary to have one, and perhaps two, inspectors between Lake Superior and the Pacific. The present Inspector of Accidents has, in some cases, been required to make inspections of the roadbeds, equipment or stations on various lines of railway, as appears from his reports subjoined.

A list of reports of accidents and investigations (including inspection of railways) covering a period of twenty-six months for February 1, 1904, to March 31, 1906, divided for the purposes of convenience into two periods, will be found under Appendix G.

All of which is respectfully submitted.

A. C. KILLAM,
Chief Commissioner.

M. E. BERNIER,
Deputy Chief Commissioner.

JAMES MILLS,
Commissioner.

APPENDIX A.

NAMES AND COMPENSATION OF ALL EMPLOYEES,

TOGETHER WITH

A STATEMENT OF APPROPRIATIONS AND EXPENDITURES

APPENDIX A.

NAMES AND COMPENSATION OF ALL EMPLOYEES, TOGETHER WITH A STATEMENT OF APPROPRIATIONS AND EXPENDITURES.

APPROPRIATION, STATEMENT OF EXPENDITURE AND PERSONS EMPLOYED BY THE BOARD OF RAILWAY COMMISSIONERS.

STATEMENT of appropriation and aggregate expenditures for the Board of Railway Commissioners for the fiscal year ending June 30, 1905.

For salaries of commissioners as provided by Statute 3 Ed. VII., chap. 58	$26,000 00	
For salary of secretary, as provided by order in council	3,000 00	
		$29,000 00
For maintenance and operation of the Board of Railway Commissioners for Canada, Appropriation Act, 1904		60,000 00
		$89,000 00
Amount paid as salaries to commissioners and secretary	$26,321 24	
Amount paid for maintenance and operation of the board	51,236 71	
		77,236 71
Unexpended balance June 30, 1905		$11,442 05

CLERICAL FORCE OF THE BOARD OF RAILWAY COMMISSIONERS FOR CANADA, FOR THE YEAR ENDING MARCH 31, 1906.

Name.	Office.	Whence appointed.	Date of Order in Council.	Per annum
G. A. Mountain	Engineer	Ontario	30 June, 1904	4,800
J. Hardwell	Traffic Expert	Quebec	22 June, 1904	3,500
A. G. Blair, Jr.	Law Clerk	New Brunswick	20 July, 1904	2,500
E. C. Lalonde	Insp. of Acc.	Quebec	20 July, 1904	2,200
J. E. Duval	Insp. of Acc.	Ontario	5 April, 1904	2,200
C. A. Brown	Ch. Clk. Traff. Dept.	Ontario	22 June, 1904	2,000
E. A. Primeau	Reg. and Acct.	Quebec	7 May, 1904	1,800
T. L. Simmons	Engineer	Ontario	3 Oct., 1904	1,800
J. H. Tessier	Engineer	Quebec	20 July, 1904	1,800
R. Richardson	Private Sec'y. to Ch. Commr.	Ontario	1 May, 1905	1,500
C. E. McMannus	Clk. Traffic Dept.	Quebec	20 July, 1904	1,000
J. W. Thomson	Ch. Clk. Records Dept.	Ontario	1 Sept., 1904	1,000
N. Ham	Clk Traffic Dept.	Quebec	3 Oct., 1905	900
H. W. Messinger	Clk. Traffic do	Ontario	8 July, 1904	900
F. C. McGee	Clk. Record do	Ontario	20 Aug., 1904	800
C. S. Huband	Clk. Record do	Ontario	1 May, 1905	800
B. Chevrier	Clk. and Sten.	Ontario	20 July, 1904	800
G. T. Riddell	Clk. Traffic Dept.	Quebec	1 May, 1905	720
T. Chandler	Court Usher	Ontario	7 May, 1904	700
L. J. Lewis	Clk. and Sten.	Ontario	7 May, 1905	600
L. M. Cameron	Clk. and Sten.	Ontario	20 July, 1904	600
R. Larose	Clk. and Sten.	Ontario	1 May, 1905	550
J. Arbick	Messenger	Ontario	23 Dec., 1904	510
D. Langelier	Messenger	Quebec	20 July, 1904	500
G. Taylor	Cook on Official Car.	Ontario		720

APPENDIX B.

RULES AND REGULATIONS OF THE BOARD

APPENDIX B.

RULES AND REGULATIONS OF THE BOARD.

(Meeting at Ottawa.)

TUESDAY, the 18th day of October, A.D. 1904.

The board, in virtue of the provisions of the Railway Act, 1903, hereby makes the following rules and regulations:—

PUBLIC SESSIONS.

1. The general sessions of the board for hearing contested cases will be held at its Court Room in Ottawa, Ontario on such dates and at such hour as the board may designate.

When special sessions are held at other places, such announcements as may be necessary will be made by the board.

INTERPRETATION.

2. In the construction of these rules, and the forms herein referred to, words importing the singular number shall include the plural, and words importing the plural number shall include the singular number; and the following terms shall (if not inconsistent with the context or subject) have the respective meanings hereinafter assigned to them; that is to say, 'Application' shall include complaint under this Act; 'Respondent' shall mean the person or company who is called upon to answer to any application or complaint; 'Affidavit' shall include affirmation; and 'Costs' shall include fees, counsel fees, and expenses.

APPLICATION OR COMPLAINT.

3. Every proceeding before the board under this Act shall be commenced by an application made to it, which shall be in writing and assigned by the applicant or his solicitor; or in the case of a corporate body or company being the applicants shall be signed by their manager, secretary, or solicitor. It shall contain a clear and concise statement of the facts, the grounds of aplication, the section of the Act under which the same is made, and the nature of the order applied for, or the relief or remedy to which the applicant claims to be entitled. It shall be divided into paragraphs, each of which, as nearly as possible, shall be confined to a distinct portion of the subject, and every paragraph shall be numbered consecutively. It shall be endorsed with the name and address of the applicant, or if there be a solicitor acting for him in the matter, with the name and address of such solicitor. The application shall be according to the forms in schedule No. 1.

The application, so written and signed as aforesaid, shall be left with or mailed to the secretary of the board, together with a copy of any document, or copies, of any maps, plans, profiles, and books of reference, as required under the provisions of the Act, (*a*) referred to therein, or which may be useful in explaining or supporting the same. The secretary shall number such applications according to the order in which they are received by him and make a list thereof. From the said list there shall be made up a docket of cases for hearing which, as well as their order of entry on the docket, shall be settled by the board. Said docket list when completed to be put upon a notice board provided for that purpose, which shall be open for inspection at the office of the secretary during office hours.

(*a*) For further particulars of plans, &c., see regulations in Appendix.

ANSWER.

4. Within ten days from the service of the application, the respondent or respondents shall mail or deliver to the applicant, or his solicitor, a written statement containing in a clear and concise form their answer to the application, and shall also leave or mail a copy thereof with or to the secretary of the board at its office, together with any documents that may be useful in explaining or supporting it. The answer may admit the whole or any part of the facts in the application. It shall be divided into paragraphs, which shall be numbered consecutively, and it shall be signed by the person making the same, or his solicitor. It shall be endorsed with the name and address of the respondents, or if there be a solicitor acting for them in the matter, with the name and address of such solicitor. It shall be according to the form in schedule No. 2.

REPLY.

5. Within four days from the delivery of the answer to the application, the applicant shall mail or deliver a reply thereto to the respondents, and a copy thereof to the secretary to the board, and may object to the said answer as being insufficient, stating the grounds of such objection, or deny the facts stated therein, or may admit the whole or any part of said facts. The reply shall be signed by the applicant or his solicitor, and may be according to form No. 3 in the said schedule.

The board may, at any time, require the whole or any part of the application, answer or reply, to be verified by affidavit, upon giving a notice to that effect to the party from whom the affidavit is required; and if such notice be not complied with the application, answer or reply may be set aside, or such part of it as is not verified according to the notice may be struck out.

SUSPENSION OF PROCEEDINGS.

6. The board may require further information, or particulars, or documents from the parties and may suspend all formal proceedings until satisfied in this respect.

If the board, at any stage of the proceedings, think fit to direct inquiries to be made under any of the provisions of this Act, it shall give notice thereof to the parties interested, and may stay proceedings or any part of the proceedings thereon accordingly.

NOTICE.

7. In all proceedings under this Act, where notice is required, a copy or copies of said proceeding or proceedings, for the purpose of service, shall be endorsed with notice to the parties in the forms of endorsement set forth in schedules Nos. 1 and 2; and in default of appearance the board may hear and determine the application *ex parte*.

Endorsements shall be signed in accordance with the provisions of Section 28.

The board may enlarge or abridge the periods for putting in the answer or reply, and for hearing the application and in that case the period shall be endorsed in the notice accordingly.

Except in any case where it is otherwise provided ten days' notice of any application to the board or any hearing by the board shall be sufficient; unless, in any case, the board directs longer notice. The board may, in any case, allow notice for any period less than ten days, which shall be sufficient notice as if given for ten days or longer. (Section 31.)

Notice may be given or served as provided by Section 28 of the Act.

When the board is authorized to hear an application or make an order, upon notice to the parties interested, it may, upon the ground of urgency, or for other reason appearing to the board to be sufficient, notwithstanding any want of or insufficiency in such notice, make the like order or decision in the matter as if due notice had been given to all parties; and such order or decision shall be valid and take effect in all respects as if made on due notice; but any person entitled to notice, and not sufficiently

notified may, at any time within ten days after becoming aware of such order or decision, or within such further time as the board may allow, apply to the board to vary, amend, or rescind such order or decision; and the board shall thereupon, on such notice to all parties interested as it may in its discretion think desirable, hear such application, and either amend, alter or rescind such order or decision or dismiss the application, as may seem to it just and right. (Section 32.)

CONSENT CASES.

8. In all cases the parties may, by consent in writing, with the approval of the board, dispense with the form of proceedings herein mentioned, or some portion thereof.

POWER TO DIRECT AND SETTLE ISSUES.

9. As it appears to the board at any time that the statements in the application, or answer, or reply do not sufficiently raise or disclose the issues of fact in dispute between the parties, it may direct them to prepare issues, and such issues shall, if the parties differ, be settled by the board.

PRELIMINARY QUESTIONS OF LAW.

10. If it appear to the board at any time that there is a question of law which it would be convenient to have decided before further proceeding with the case, it may direct such question to be raised for its information, either by special case or in such other manner as it may deem expedient, and the board may pending such decision, order the whole or any portion of the proceeding before the board in such matter, to be stayed.

PRELIMINARY MEETING.

11. If it appear to the board at any time before the hearing of the application that it would be advantageous to hold a preliminary meeting for the purpose of fixing or altering the place of hearing, determining the mode of conducting the inquiry, the admitting of certain facts or the proof of them by affidavit, or for any other purpose, the board may hold such meeting upon such notice to the parties as it deems sufficient, and may thereupon make such orders as it may deem expedient.

PRELIMINARY EXAMINATION WITH THE PARTIES.

12. The board may, if it thinks fit, instead of holding the preliminary meeting, provided for in Rule 11, communicate with the parties direct, and may require answers to such inquiries as it may consider necessary.

PRODUCTION AND INSPECTION OF DOCUMENTS.

13. Either party shall be entitled, at any time, before or at hearing of the case, to give notice in writing to the other party whose application, or answer, or reply reference was made to any document, to produce it for the inspection of the party giving such notice, or his solicitor, and to permit him to take copies thereof; and any party not complying with such notice shall not afterwards be at liberty to put in such documents in evidence on his behalf in said proceedings, unless he satisfy the board that he had sufficient cause for not complying with such notice.

NOTICE TO PRODUCE.

14. Either party may give to the other a notice in writing to produce such documents as relate to any matter in difference (specifying the said documents), and which are in the possession or control of such other party; and if such notice be not complied with, secondary evidence of the contents of the said documents may be given by or on behalf of the party who gave such notice.

15. Either party may give to the other party a notice in writing to admit any documents, saving all just exceptions, and in case of neglect to admit, after such notice, the cost of proving such documents shall be paid by the party so neglecting or refusing, whatever the result of the application may be; unless, on the hearing, the board certifies that the refusal to admit was reasonable; and no costs of proving any document shall be allowed, unless such notice be given, except where the omission to give the notice is, in the opinion of the board, a saving of expense.

WITNESSES.

16. The attendance and examination of witnesses, the production and inspection of documents, shall be enforced in the same manner as is now enforced in a Superior Court of law; and the proceedings for that purpose shall be in the same form, *mutatis mutandis*, and they shall be sealed by the secretary of the board with the seal and may be served in any part of Canada. (Sec. 23.)

Witnesses shall be entitled, in the discretion of the board, to be paid the fees and allowances prescribed by schedule No. 4, annexed hereto.

THE HEARING.

17. The witnesses at the hearing shall be examined viva voce; but the board may, at any time, for sufficient reason, order that any particular facts may be proved by affidavit, or that the affidavit of any witnesses may be read at the hearing on such conditions as it may think reasonable; or that any witnesses whose attendance ought, for some sufficient reason, to be dispensed with, be examined before a commissioner appointed by it for that purpose, who shall have authority to administer oaths, and before whom all parties shall attend. The evidence taken before such commissioner shall be confined to the subject matter in question, and any objection to the admission of such evidence shall be noted by the commissioner and dealt with by the board at the hearing. Such notice of the time and place of examination as is prescribed in the order shall be given to the adverse party. All examinations taken in pursuance of any of the provisions of this Act, or of these rules, shall be returned to the court; and the depositions certified under the hands of the person or persons taking the same may, without further proof, be used in evidence, saving all just exceptions. The board may require further evidence to be given either viva voce or by deposition, taken before a commissioner or other person appointed by it for that purpose.

The board may, in any case when deemed advisable, require written briefs to be submitted by the parties.

The hearing of the case, when once commenced, shall proceed, so far as in the judgment of the board may be practicable, from day to day.

JUDGMENT OF THE BOARD.

18. After hearing the case the board may dismiss the application, or make an order thereon in favour of the espondents, or reserve its decision, or (subject to the right of appeal in the Act mentioned) make such other order on the application as may be warranted by the evidence and may seem to it just.

The board may give verbally or in writing the reasons for its decisions. A copy of the order made thereon shall be mailed or delivered to the respective parties. It shall not be necessary to hold a court merely for the purpose of giving decisions.

Any decision or order made by the board under this Act may be made an order of the Exchequer Court, or a rule, order, or decree of any Superior Court of any province of Canada, and shall be enforced in like manner as any rule, order, or decree of such court. To make such decision or order a rule, order or decree of such court, the usual practice and procedure of the court in such matters may be followed, or in lieu thereof the form prescribed in subsection 2, section 35, of the Act.

The board shall with respect to all matters necessary or proper for the due exercise of its jurisdiction under this Act, or otherwise for carrying this Act into effect, have all such powers, rights and privileges as are vested in a Superior Court. (Sec. 23.)

ALTERATION OR RESCINDING OF ORDERS.

19. Any application to the board to review, rescind, or vary any decision or order made by it shall be made within thirty days after the said decision or order shall have been communicated to the parties, unless the board think fit to enlarge the time for making such application, or otherwise orders.

APPEAL.

20. If either party desire to appeal to the Supreme Court of Canada from the decision or order of the board upon any question which, in the opinion of the board, is a question of law, he shall give notice (*c*) thereof to the other party and to the secretary, within fourteen days from the time when the decision or order appealed from was made, unless the board allows further time, and shall in such notice state the grounds of the appeal. The granting of such leave shall be in the discretion of the board.

For procedure upon such leave being obtained see section 44, subsection 4 *et seq.* of the Act.

An appeal shall lie from the board to the Supreme Court of Canada upon a question of jurisdiction; but such appeal shall not lie unless the same is allowed by a judge of the said court upon application and hearing the parties and the board.

The costs of such application shall be in the discretion of the judge.

INTERIM EX PARTE ORDERS.

21. Whenever the special circumstances of any case seem to so require, the board may make an interim ex parte order requiring or forbidding anything to be done which the board would be empowered upon application, notice and hearing to authorize, require or forbid. No such interim order shall, however, be made for a longer time than the board may deem necessary to enable the matter to be heard and determined. (Sec. 38).

AFFIDAVITS.

22. Affidavits of service according to the form No. 6 shall forthwith, after service be filed with the board in respect of all documents or notices required to be served under these rules except when notice is given or served by the secretary of the board, in which case no affidavit of service shall be necessary.

All persons authorized to administer oaths to be used in any of the Superior courts of any province, may take affidavits to be used on any application to the board.

Affidavits used before the board, or in any proceeding under this Act, shall be filed with the secretary of the board at its office.

Where affidavits are made as to belief, the grounds upon which the same are based must be set forth.

COMPUTATION OF TIME.

23. In all cases in which any particular number of days, not expressed to be clear days, is prescribed by this Act, or by these rules, the same shall be reckoned exclusively of the first day and inclusively of the last day, unless the last day shall happen to fall on a Sunday, Christmas Day, or Good Friday, or a day appointed for a public fast or thanksgiving in the Dominion or any of the provinces, in which case the time shall be reckoned exclusively of that day also.

(*c*) For form of notice see form No. 5 in the schedule hereto.

ADJOURNMENT.

24. The board may, from time to time, adjourn any proceedings before it.

AMENDMENT.

25. The board may at any time allow any of the proceedings to be amended, or may order to be amended or struck out any matters which, in the opinion of the board, may tend to prejudice, embarrass, or delay a fair hearing of the case upon its merits; and all such amendments shall be made as may, in the opinion of the board, be necessary for the purpose of hearing and determining the real question in issue between the parties.

FORMAL OBJECTIONS.

26. No proceedings under this Act shall be defeated or affected by any technical objections or any objections based upon defects in form merely.

PRACTICE OF EXCHEQUER COURT COURT WHEN APPLICABLE.

27. In any case not expressly provided for by this Act, or these rules, the general principles of practice in the Exchequer Court may be adopted and applied, at the discretion of the board to proceedings before it.

COSTS.

28. The costs of and incidental to any proceedings before the board shall be in the discretion of the board, and may be fixed in any case at a sum certain, or may be taxed. The board may order by whom and to whom the same are to be paid, and by whom the same are to be taxed and allowed.

SCHEDULE No. 1.

(Forms of Application.)

The Board of Railway Commissioners for Canada.

Application No. (This No. is to be filled in by the secretary on receipt.)

A. B. of C. D. hereby applies to the board for an order under section 198 of The Railway Act, 1903, directing the
Railway Company to provide and construct a veritable farm crossing where the company's railway intersects this farm in lot con. tp. county of Ontario, and states—

1. That he is the owner of the land, &c.
2. That by reason of the construction of the said railway he is deprived, &c.
3. That it is necessary for the proper enjoyment of his said land, &c.

Dated this day of A.D. 19 .

(Signed A.B.)

Endorsements.

The within application is made by A. B. of (state address and occupation) or by C. D., of his solicitor.

Take notice that the within named Railway Company is required to file with the Board of Railway Commissioners within ten days from the service hereof, its answer to the within application.

Form of Application.

(Where no Notice Required.)

THE BOARD OF RAILWAY COMMISSIONERS FOR CANADA.

Application No. .

The Railway Company hereby applies to the board for an order under section 130 of the Railway Act, 1903, sanctioning the plans, profiles and books of reference submitted in triplicate herewith, showing a proposed deviation of its line of railway as already constructed between and , mileage to .

Dated this day of A.D. 19 .

(Signed A.B.)

SCHEDULE No. 2.

(Form of Answer.)

THE BOARD OF RAILWAY COMMISSIONERS FOR CANADA.

In the matter of the Application, No. of A.B. for an order under section 198 of the Railway Act, 1903 directing Railway Company to provide a farm crossing.

The said company, in answer to the said application, states:—

1. That the said A.B. is not the owner, but merely, &c.

2. That upon the acquisition of the right of way of the said railway, A.B. was duly paid for and released, &c.

3. That the said A.B. has other and safe and convenient means, &c.

4. That, &c.

Dated, &c.

Endorsements.

The within answer is made by A.B. of (state address and occupation) or by C.D. of his solicitor.

Take notice that the within named applicant is required to file with the Board of Railway Commissioners within four days from the service hereof, his reply to the within answer.

SCHEDULE No. 3.

(Reply.)

THE BOARD OF RAILWAY COMMISSIONERS FOR CANADA.

In the matter of the application of A.B. against the company.

The said A.B., in reply to the answer of the said company states that:—

1.

2. And the said A.B. admits that

Dated this day of A.D. 19 .

(Signed Q.)

SCHEDULE No. 4.

(Fees and allowances to witnesses.)

THE BOARD OF RAILWAY COMMISSIONERS FOR CANADA.

To witnesses residing within three miles of the court room, per diem (not including ferry and meals)	$1 00
Barristers, attorneys and physicians, when called upon to give evidence in consequence of any professional services rendered by them, or to give professional opinion, per diem	5 00

Engineers, surveyors and architects, when called upon to give evidence of any professional services rendered by them, and to give evidence depending upon their skill and judgment, per diem.. .. .. 5 00

If the witnesses attend in one case only, they will be entitled to the full allowance. If they attend in more than one case, they will be entitled to a proportionate part in each case only.

When witnesses travel over three miles they shall be allowed expenses according to the sum reasonably and actually paid, which in no case shall exceed twenty cents per mile one way.

SCHEDULE No. 5.

(Notice of Appeal.)

THE BOARD OF RAILWAY COMMISSIONERS FOR CANADA.

In the matter of the application No. , of A.B., for an order under section 198 of the Railway Act, 1903, authorizing the Railway, &c., &c.

To the Board of Railway Commissioners,
and
To
The above named applicant (or respondent, as the case may be).

Take notice that the Company will apply to the board on the day of , (not exceeding fourteen days from the date thereof), for leave to appeal to the Supreme Court of Canada from the order of the board, dated the day , in the matter of the above application authorizing the expropriation of certain lands referred to in said order, and directing that compensation or damages to be awarded to the owners of said lands, or persons interested therein, shall be ascertained as and from the date of the application, (or such other time as may be named in this order).

The grounds of appeal are that as a matter of law, the awarding of such compensation or damages should be ascertained and determined from the date of the deposit of plan, profile, &c., as provided under section 153 of the Act, and not from the time stated in the order.

Dated this day of .

Signed,

Solicitor, &c.

SCHEDULE No. 6.

(Form of Affidavit of Service.)

THE BOARD OF RAILWAY COMMISSIONERS FOR CANADA.

In the matter of the application No. , of A.B., for an order under section 198 of the Railway Act, 1903, directing Railway Company to provide a farm crossing.

I. , of the city of Ottawa, &c., make oath and say:—

1. That I am a member, &c.

2. That I did on 19 , serve the (C.P.) Railway Company above named with a true copy of the (application) of the said (A.B.) in this matter by delivering the same to (C.D.) the (secretary) of the said company, (or to E.F., the assistant to the general manager) of the company, being an adult person in the employ of the company at the head office of the company in (Montreal), see section 28 (*a*), which said copy was endorsed with the following notice, viz.:—

(Copy exactly.)

Sworn, &c.

REQUIREMENTS ON APPLICATION HAVING REFERENCE TO PLANS.

No. 1.—General Location of Railway—Sections 122-124.

(*a*) Send to secretary of the Department of Railways and Canals: 3 copies of *map* showing the general location of the proposed line of railway, the termini and the principal towns and places through which the railway is to pass, giving the names thereof, the railways, navigable streams and tide-water, if any, to be crosed by the railway, and such as may be within a radius of thirty miles of the proposed railway, and generally the physical features of the country through which the railway is to be constructed.

1st copy to be examined and approved by the minister and filed in the Department of Railways and Canals.

2nd copy to be approved by minister for filing by the company with the board.

3rd copy to be approved by minister for the company.

Scale of map—not less than 6 miles to the inch.

(*b*) Upon approved general location map being filed by the company with the board, send to the secretary of the board three sets of plans prepared exactly in accordance with the 'general notes' hereunder, as follows:—

1st set—{1 plan. 1 profile. 1 book of reference.} To be examined, sanctioned and deposited with the board.

2nd set—Same as 1st.—To be examined, certified and returned for registration.

3rd set—Same as 1st.—To be certified and returned to company.

Scale—Plans—400 feet to the inch.

N.B.—In prairie country, scale may be 1,000 feet to the inch.

Profiles.—Horizontal, 400 feet; vertical, 20 feet.

No. 2—To Alter Location of Line Previously Sanctioned or Completed—Section 130.

Send to the secretary of the board three sets of plans, profiles and books of reference as required in No. 1 (*b*).

(N.B.—The plans and profiles so submitted will be required to show the original location, grades and curves, and the changes desired or necessitated.)

Scale—Same as No. 1 (*b*).

No. 3—Plans of Completed Railway. Section 128.

Send to the secretary of the board within six months after completion three sets of plans and profiles of the completed road.

1st set to be filed with the board.

2nd set to be certified and returned to the company.

3rd set for registration purposes.

Scale—Same as No. 1 (*b*).

No. 4—To take Additional Lands for Stations, Snow Protection, &c.—Section 139.

Send to the secretary of the board three sets of plans and documents as follows:—

1st set—{1 application sworn to by officers required to sign and certify plans. See 'General Notes.' 1 plan, 1 profile. 1 book of reference.} To be examined and certified and deposited with the Board.

2nd set (same as first)—For certificate and return for registration, with duplicate authority.

3rd set (same as first)—For certificate and return to company, with copy of authority.

Scale—Same as No. 1 (*b*).

N.B.—Ten days' notice of application must be given by the applicant company to the owner or possessor of the property, and copies of such notice with affidavits of service thereof must be furnished to the board on the application.

No. 5—Branch Lines, not exceeding six miles—Section 175.

(*a*) 1 plan, profile and book of reference same as No. 1 (*b*) to be deposited in Registry Office.

Upon such registration 4 weeks public notice of application to the board to be given.

Send to the secretary of the board an application with copies of the plan, profile and book of reference certified by the registrar as a duplicate of those so deposited in the registry office.

A certified copy of the order authorizing the construction of the branch lines to be registered together with any papers and plans showing changes directed by the board.

A map showing the adjacent country, neighbouring lines, &c., must be sent to the secretary of the board with the application.

Proof of registration and of public notice having been duly given will be required upon the application.

Scale—Same as No. 1 (*b*).

No. 6—Railway Crossings or Junctions. Section 177.

Send to the secretary of the board with an application three sets of plan of both roads at point of crossing.

Scale—Plan—100 feet to the inch.

Also three sets of plan and profile of both roads on either side of the proposed crossing for a distance of two miles.

Scale—Plan—400 feet to the inch.

Profile—400 feet to inch horizontal; 20 feet to inch vertical.

1st set for approval by and filing with the board.

2nd and 3rd sets to be certified and furnished to the respective companies concerned, with certified copy of order.

The applicant company must give ten days' notice of application to the company whose lines are to be crossed or joined, and shall serve with such notice a copy of all plans and profiles and a copy of the application. Upon completion of work application must be made to the board for leave to operate.

No. 7—Highway Crossings.—Sections 184 to 191.

Send to the secretary of the board with an application, three sets of plans and profiles of the crossings.

Scale—Plan—100 feet to inch.

Profile—100 feet to inch horizontal; 20 feet to inch vertical.

1st set for approval by and filing with the board.

2nd and 3rd sets to be furnished to the respective parties concerned, with a certified copy of the order approving the same.

The plan and profile shall show at least ½ a mile of the railway and 200 feet of the highway on each side of the crossing.

The applicant must give ten days' notice of application to the opposite party and with such notice shall serve a copy of the plan and profile and of the application.

No. 8.—Crossings with wires for Telegraph, Telephones and Powers.—Section 194.

Send to the secretary of the board with the application a plan and profile in duplicate. Profile must show the distance between the different lines of wire.

A copy of plan and profile to be sent to the railway company with notice of application.

No. 9.—Crossings and Works upon Navigable Waters, Beaches, &c.—Section 182.

Upon sight and general plans being approved by the Governor in Council, send to the secretary of the board:—

Certified copy of order in council with the plans and description approved thereby—1 application and 2 sets of detail, plans, profiles, drawings and specifications.

1st set for filing with board.

2nd set to be certified and returned to company with certified copy of order.

Upon completion of work, application must be made to the board for leave to operate.

No. 10.—Bridges, Tunnels, Viaducts, Trestles, &c., over 18 ft. span.—Section 203.

(*a*) Must be built in accordance with standard specification and plans, approved of by the board.

(*b*) Or detail plans, profiles, drawings and specifications which may be blue, white or photographic prints, must be sent to the secretary of the board for approval, &c., as in No. 8.

No. 11.—Stations.—Section 204.

Send to the secretary of the board:—

Two sets of detail plans, profiles, drawings and specifications, with an application for approval.

1st set for filing with the board.

2nd set to be certified and returned to company with certified copy of order of approval.

GENERAL NOTES.

Plans (for Nos. 1 (*b*) to 5) must show the right of way, with lengths of sections in miles, the names of the terminal points, the station grounds, the property lines, owner's names, the areas and length and width of land proposed to be taken, in figures (every change of width being given) the curves and the bearings, also all open drains, water courses, highways, and railways proposed to be crossed or affected.

Profiles must show the grades, curves, highway and railway crossings, open drains and water courses, and may be endorsed on the plan itself.

Books of reference shall describe the portion of land proposed to be taken in each lot to be traversed, giving numbers of the lots, and the area, length and width of the portion thereof proposed to be taken and names of owners and occupiers so far as they can be ascertained.

All plans, profiles and books of reference must be dated and must be certified and signed by the president or vice-president or general manager, and also by the engineer of the company.

The plan and profile to be retained by the board must be on *linen*, the copies to be returned may be either white, blue or photographic prints.

All profiles shall be based, where possible, upon sea level datum.

All books of reference must be made on good thick paper and in the form of a book with a suitable paper cover. The size of such books when closed shall be as near as possible to 7½ inches by 7 inches.

FORM OF BOOK OF REFERENCE REQUIRED.

....Railway Company.

....Division or Province ....Branch.

Book of reference to accompany location plan showing lands required for railway purposes.

Station to	Station.	Width of R'y.	Owner.		Centre of Book when open.	Part of	Sec. or Lot.	Township Parish Block or Number of Claim.	Range	Contents, Acres	Remarks.

INTERLOCKING SYSTEM.

Rules for Signals and Speed of Trains where one Steam Railway Crosses Another at Rail Level.

When the signal on distant semaphore post indicates *caution,* a train passing it must be under *full control* and come to a *full stop* before reaching the home post.

When the signal on the home post indicates *danger,* it must *not be passed.*

When the signals on the distant and home post indicate *safety,* the trains can proceed.

When clear signals are shown the speed of passenger trains must be reduced to *twenty* miles and freight trains to *ten* miles per hour, until the entire train has passed the crossing.

GENERAL REQUIREMENTS.

Applicable to Steam Railways for Interlocking, Derailing and Signal System at Crossings at Rail Level and at Junctions.

The plan and construction of interlocking, signalling and derailing system to be used at rail level crossings and junctions of one railway by another must be arranged to conform to the following general rules:—

1. The normal position of all signals must indicate danger, derail points open and the interlocking so arranged that it will be impossible for the operator to give conflicting signals.

2. The derail points must be placed not less than 500 feet from point of intersection of the crossing of junction tracks, unless in special cases in which the board authorizes in writing a less distance.

3. On side track the position of derail points may be located so as to best accommodate the traffic, and provide the same measure of safety indicated in foregoing rules.

4. On single track railways derail points, when practicable, should be on inside of curve and on double track railway the derail points should be in outside rail on both tracks. On double track railways, back up derails will be required.

5. Home signal posts must be 50 feet beyond point of derail, and the distance between home and distant signals must be not less than 1,200 feet. Signal post should be placed on engineman's side of track it governs.

6. Guard rails should be laid on outside of rail in which the derail is placed and commence at least 6 feet toward home signal from point to derail, extending from thence toward crossing, parallel with and 9 inches distant from track rail, for 400 feet.

7. In case there are cross-overs, turnouts, or other connecting tracks involved in the general system, the movements of cars and trains upon which present an element of danger, which will be enhanced by the passage of trains on main tracks over crossings without stopping, and consequently at higher speed than would be the case without the permit sought, then, and in all such cases, whether such enhanced danger be of collision between cars and trains of the same railway, or between cars or trains of different railways, it will be necessary, in addition to the protection of the main crossing, to provide by proper appliances against any such increased collateral dangers in the same complete manner as is required in the case of the main crossing.

8. Application for inspection of interlocking plant must be made to the board accompanied by a plain diagram, showing location of crossing and position of all main tracks, sidings, switches, turnouts, &c.

The several tracks must be indicated by letters or figures, and reference made to each, explaining the manner of its use. The rate of grade on each main track must be shown, together with numbers of signals, derails, locks, &c., corresponding to levers in tower.

It is intended herein to state general rules, which will govern the construction of any proposed system of interlocking. The traffic to be done, relative position and operation of intersecting lines may require safeguards not mentioned herein.

The system of derailing, signalling and interlocking must be connected and worked and be complete in each particular before the board will grant an order authorizing the operation of such interlocking, derailing and signal system, or the crossing by the railway ordered to put on the system.

Board of Railway Commissioners for Canada,
Ottawa, August, 1904.

GENERAL REQUIREMENTS FOR INTERLOCKING AT DRAWBRIDGES.

Interlocking, signalling and derailing systems to be used at drawbridges must be arranged to conform to the following general rules:—

1. The normal position of all signals must indicate danger, derail points open, and the interlocking so arranged that it will be impossible for the operator to open the draw until signals and derails are set against the approaching train movement.

2. Where the grade is practically level the derailing points shall be located not less than 500 feet from the ends of the bridge, but in case of a descending grade towards the bridge, the derailing point must be located at such distance from the bridge as to give the same measure of protection that is required for a level approach.

3. On single track railways, derail points, when practicable, should be on the inside of curve, and on double track railways, the derail points should be in outside rails of both tracks.

4. On double track railways back-up rails will be necessary.

5. Home signal posts must, when practicable, be located on the engineman's side of the track they govern, and should be not less than fifty (50) feet nor more than two hundred (200) feet in advance of the point they govern, the distant signals should be located not less than twelve hundred (1,200) feet in advance of the home signal, with which it operates and on the same side of the track. The distance signal should be distinguished by a notch cut in the end of the semaphore arm.

6. The arms and back lights of all signals should be visible to the signalman in the tower. If from any cause, the arm or light of any signal cannot be placed so as to be seen by the signalman, a repeater or indicator should be provided in the tower.

7. Guard rails should be laid on outside of rail in which the derail is placed, and, commencing at least 6 feet in advance of derail, should extend thence towards the end of the bridge, parallel with and 9 inches from track rail, for not less than 400 feet.

8. Application for inspection must be made same as for railway crossings.

Board of Railway Commissioners for Canada.
Ottawa, August, 1904.

By order of the board,

A. D. CARTWRIGHT,
Secretary.

APPENDIX C.

LIST OF APPLICATIONS HEARD AT PUBLIC SITTINGS OF THE BOARD COVERING THE PERIOD FROM FEBRUARY 1, 1904, TO MARCH 31, 1906

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LIST OF APPLICATIONS HEARD AT PUBLIC SITTINGS OF THE BOARD COVERING THE PERIOD FROM FEBRUARY 1, 1904, TO MARCH 31, 1906.

1. Application of the Vancouver, Westminster and Yukon Railway Company to the board to repeal, rescind or vary an order of the Railway Committee of the Privy Council, dated January 25, 1904.

2. Application of the Vancouver, Westminster and Yukon Railway Company for an extension of the interim order of the Railway Committee of the Privy Council, dated December 28, 1903, *re* the V. W. and Y. Railway crossing the Canadian Pacific Railway at Sapperton.

3. Application of the Vancouver, Westminster and Yukon Railway Company for approval of the place and mode of crossing, at rail level, by its railway, of the British Columbia Electric Railway on Westminster avenue and at Venables and Powell streets, in the city of Vancouver.

4. Application of the Grand Trunk Railway Company for an order varying or amending the order of the Railway Committee of the Privy Council of November 11, 1903, approving of the Lindsay, Bobcaygeon and ontypool Railway Company running its line of railway over lands owned or occupied by the Grand Trunk Railway Company in the town of Lindsay.

5. Application of the Canadian Pacific Railway Company to the board to repeal, rescind, change or vary on order of the Railway Committee of the Privy Council, dated January 11, 1904, *re* the Bay of Juinté Railway crossing the Canadian Pacific Railway at Tweed.

6. Applications of the municipalities of Port Arthur and Fort William, under section 193, Railway Act, for connection with the Canadian Pacific Railway Company's stations.

7. Application, under section 130, chap. 58, Railway Act, for substitution of plans already approved by Minister of Railway and Canals, July 29, 1903.

8. Application of the Canadian Pacific Railway Company, under section 139 of the Railway Act, for authority to take additional lands on Point Douglas avenue, in the city of Winnipeg.

9. Application of the Niagara, St. Catharines and Toronto Railway Company for permission to intersect and unite with the Wabash Company's line, which the latter have leased from the Grand Trunk Railway Company.

10. Application of the Niagara, St. Catharines and Toronto Railway Company, *re* crossing of its railway by the branch line of the Grand Trunk Railway near Merritton.

11. Application of the Canadian Pacific Railway Company for the continuation, or otherwise, of an interim order, dated December 1, 1903, providing for the crossing of the Canadian Pacific Railway Company's Pembina branch near Holmfield station, Manitoba, by the Canadian Northern Railway.

12. Application of the Canadian Pacific Railway Company for leave to construct a branch line from a point on Credit Valley Railway (Canadian Pacific Railway) where same passes through lot 7, con. 1, of Chinguacousy, west of Hurontio street to Dale estate, in town of Brampton.

13. Application of the Canadian Pacific Railway for authority to carry a portion of highway between concessions 2 and 3 of the township of London, in county of Middlesex, over the railway of the company, by an overhead bridge at right angles to the track.

14. Application of the Grand Valley Railway Company for approval of the place and mode of crossing by its railway of the Grand Trunk Railway by means of an overhead bridge.

15. Application of the corporation of the city of Toronto for an order directing the Grand Trunk Railway Company to protect crossing of the northern division of said railway over Bloor street, in the said city of Toronto, by gates and watchmen, the same to be protected night and day.

16. Application of the township of York to rescind or vary an order of the Railway Committee of the Privy Council, dated January 5, 1891, A.D., requiring the Canadian Pacific Railway, *et al,* to furnish certain protection on Dufferin and other streets, in the city of Toronto, on terms.

17. Application of the municipality of Ste. Cunegonde for the establishment of a rail level crossing of the Grand Trunk Railway by Dominion street, in the city of Montreal.

18. Application of the Chateauguay and Northern Railway Company for an order confirming an interim order of the Railway Committee of the Privy Council, dated January 25, 1904, authorizing crossing at rail level of the tramway tracks owned and operated by 'La Communauté des Soeurs de Charité de la Providence' at Longue Pointe, on the island of Montreal.

19. Application of the Canadian Pacific Railway Company for an order allowing the company to construct a spur track from a point on the main line near Fonseca street, in the city of Winnipeg, opposite Argyle street; thence running west of Fonseca street to Main street, with a spur track from the said track at a point near Maple street, into the lands of the said company.

20. Application of the Winnipeg Electric Street Railway Company, for approval of the place and mode of crossing of the line of the Canadian Pacific Railway by the line of the Winnipeg Electric Street Railway, on Portage avenue, in the city of Winnipeg, by means of a subway.

21. Application of the hearing of complaint of F. A. Scobell against the Kingston and Pembroke Railway Company (operated by the Canadian Pacific Railway Company) in regard to freight rates charged by the railway company on the wood products of the country adjacent to the railway.

22. Application of the United Factories, Limited, of Toronto, for the hearing of complaint against the Grand Trunk Railway System in the matter of an advance from three to four cents per one hundred pounds in the rate on logs from Penetang ex water to Newmarket.

23. Application of the Bay of Quinte Railway Company for approval of place and mode of crossing of the Central Ontario Railway at Bannockburn.

24. Application of the Toronto, Hamilton & Buffalo Railway *re* crossing of Wellington street, between Ferrie and Simcoe streets, in the city of Hamilton.

25. Application of the Canadian Pacific Railway Company for compensation by the Bay of Quinte Railway Company *re* crossing of the applicant's line and station yard in the village of Tweed.

26. Application of the Bay of Quinte Railway Company for an order compelling the Canadian Pacific Railway Company to allow the applicant to complete a crossing at the village of Tweed, and for immediate possession of the land and right of way of the Canadian Pacific Railway, in so far as it may be necessary for the purpose of completing the crossing; and for an extension of the time fixed in the original order for installation of interlocking plant at said crossing.

27. Application of the Vancouver, Westminster & Yukon Railway Company for an order extending the time for the use of the crossing by the said company of the line of the Canadian Pacific Railway at Sapperton, New Westminster, B.C., as fixed in order dated February 11, 1904, and to amend said order by permitting the said Vancouver, Westminster & Yukon Railway Company to use the said crossing for the purposes of traffic.

28. Application of the Vancouver, Westminster & Yukon Railway Company to change the place of crossing as indicated in the order of the board dated January 25, 1904.

29. Application of the Canadian Pacific Railway Company for authority to take additional lands adjoining their railway in the city of Toronto, as shown on plan and profile filed, for the convenient accommodation of the public and of the traffic of the railway.

30. Application of the Canadian Pacific Railway Company for leave to have a case stated for the opinion of the Supreme Court in *re* Tweed crossing.

31. Application of the Grand Trunk Railway Company for authority to take certain lands between Yonge and York streets and adjoining the Esplanade, in the city of Toronto, as designated and shown on plan filed No. 12812.

32. Application of the Canadian Pacific Railway Company for an order directing the Bay of Quinte Railway Company to restore that portion of the Canadian Pacific Railway track, in the village of Tweed, known as the Mill Siding, contiguous to the Canadian Pacific Railway yard.

33. Application of the corporation of the town of Richmond for an order directing that Stanley avenue be opened to its entire length.

34. Application of the Père Marquette Railroad Company for location of station yard at Niagara Falls, Ont.

35. Application of the Lake Erie & Detroit River Railway Company for approval of the place and mode of junction of its railway with that of the Michigan Central Railway at Courtright Junction, Ontario.

36. Application of the Town of Wingham for the crossing of the Grand Trunk Railway track in the town of Wingham by Shuter street, Francis street, and Carling street, as shown on plans filed.

37. Application of the Preston & Berlin Street Railway Company for a crossing at grade of that portion of the Grand Trunk line in the town of Berlin, known as the Galt Branch.

38. Application of the Preston & Berlin Street Railway Company for a crossing by means of a subway, of that portion of the Grand Trunk line in the town of Berlin, known as the Galt Branch.

39. Application of the Grand Trunk Railway Company for an order amending orders of the Railway Committee of the Privy Council, dated respectively December 19, 1902, March 4, 1903, and June 16, 1903, *re* crossing of the Grand Trunk Railway at Kingston Junction by the Montreal road, by means of a subway; and directing the various corporations to deposit security for the payment of the monies to be expended by the Grand Trunk Railway Company on said subway.

40. Application of the municipality of the village of Irvine, Assa., N.W.T., for a road crossing at ail level of the Canadian Pacific Railway at Irvine, as shown on plan filed.

41. Application of the Peterboro' Radial Railway Company for a crossing at grade by its tracks of the line of the Canadian Pacific Railway Company at George Street, in the town of Peterboro'.

42 Application of the Peterboro' Radial Railway Company for a crossing at grade by its tracks of the line of the Grand Trunk Railway Company (a) at Charlotte street, at Grand Trunk Station; (b) at Lock street in the south end of the town of Peterboro'.

43. Application of the Board of Trade of the city of Ste. Hyacinthe, for an order compelling the Grand Trunk Railway Company to provide protection by means of gates or a bridge at a point where the said railway is crossed by Bourdages street, in the city of Ste. Hyacinthe.

44. Application of the Sarnia Street Railway for a crossing at grade by its line of railway of the Northern Division of the Grand Trunk railway, at a point between Blackwell station and Point Edward, northeast of the town of Sarnia.

45. Application of the municipality of the township of Walpole, in the county of Haldimand, Ontario, for an order compelling the Grand Trunk Railway Company to provide a watchman at the intersection of the highroad and the line of the Grand Trunk Railway at the village of Jarvis.

46. Application of the municipality of the township of Finch, in the united counties of Cornwall and Stormont, Ontario, for an order compelling the Canadian Pacific Railway to construct a culvert for the purpose of carrying off the water of Wiseman creek.

47. Application of the municipality of the parish of Gordon, in the county of Victoria, New Brunswick, for a crossing at grade by the highway of the line of the Canadian Pacific Railway east of Tobique river.

48. Application of the Grand Trunk Railway Company of Canada for approval of proposed sidings, in the city of Toronto, for the Massey-Harris Company, as shown on plans filed.

49. Application of the Sydenham Glass Company for the hearing of the company's complaint against the Grand Trunk Railway Company, the Canadian Pacific Railway Company, the Lake Erie and Detroit River Railway Company, the Wabash Railroad Company, the Michigan Central Railroad Company, and the Toronto, Hamilton and Buffalo Railway Company, with regard to the rates charged by the said railway companies on the carriage of glassware from the city of Detroit, United States of America, to the city of Toronto, Ontario; and from the village of Wallaceburg to the city of Toronto.

50. Application of the Sutherland-Innes Company and the Wallaceburg Cooperage Company for the hearing of joint complaint against the Canadian Pacific Railway Company, the Lake Erie and Detroit River (Père Marquette road), and the Wabash Railroad Company, with respect to the rates charged by the said railways on the transportation of cooperage stock.

51. Complaint of the Fruit-Growers' Association against the Grand Trunk Railway Company, *et al.*, *re* rates on fruit.

52. *In re* complaint of Dominion Cattle Dealers' Association.

53. Complaint of Farmers' Associations *re* rates on grain, &c.

54. Complaint of Canadian Manufacturers' Association in *re* freight classification.

55. Complaint of Dominion Millers' Association *re* rates on grain and grain products, and rates on split peas.

56. Complaint of Almonte Knitting Company *re* discrimination in coal rates.

57. Complaint of Tower Oiled Clothing Company in *re* rates to Calgary, Northwest Territories, from Ontario, on oiled clothing.

58. Application of the corporation of the town of Brampton, Ontario, for an order compelling the Grand Trunk Railway Company to provide gates and a watchman at a point where Queen street, in the said town of Brampton, crosses the line of the Grand Trunk Railway.

59. Application of the Grand Trunk Railway Company for approval of plans of proposed siding from the company's line to the premises of J. E. Seagram, in the town of Waterloo.

60. Application of the Grand Trunk Railway Company for leave to construct a siding connecting the main line of the said company with the Union Stock Yards, in the town of West Toronto Junction.

61. Application of the Canadian Pacific Railway Company for leave to expropriate certain lands in the town of Galt.

62. Application of the Canadian Pacific Railway Company, as lessee of the Toronto, Grey and Bruce Railway Company, for leave to construct a branch line in the town of West Toronto Junction, and for authority to cross the line of the Grand Trunk Railway and the Suburban Railway Company, and the following streets, viz.: Cawthra avenue, Grove avenue, Mulock avenue, Keele street and West Toronto street, in West Toronto Junction.

63. Application of the Toronto and Mimico Railway Company to cross, by means of a single track, the double tracks of the Grand Trunk Railway Company at Sunnyside, on the Lake Shore, Toronto.

64. Application of the Toronto and Mimico Railway Company to cross, by means of a single track, the switch of the Grand Trunk Railway from main line to the Starch Works at Port Credit.

65. Hearing of complaint of Corporation of city of Toronto, in *re* delay caused to passenger and vehicular traffic at the foot of Yonge street on the Esplanade, Toronto, by the shunting of trains by the Grand Trunk Railway and Canadian Pacific Railway companies.

66. Hearing of complaint of stove manufacturers and Caloric Club *re* rates on stoves charged by the Grand Trunk Railway Company *et al.*

67. Application of T. D. Robinson, of the city of Winnipeg, under the Railway Act, 1903, for an order compelling the Canadian Pacific and Canadian Northern Railway companies to interchange traffic.

68. Complaint of Messrs. T. D. Robinson and Duncan Sinclair *re* demurrage.

69. Application of the Manitoba Iron Works, Limited, under the Railway Act, 1903, in regard to the Canadian freight classification on boilers.

70. Application of the Canadian Pacific Railway Company, under section 139 of the Railway Act, 1903, for authority to take additional lands on Point Douglas avenue, in the city of Winnipeg.

71. Application of the Winnipeg Electric Street Railway Company, under section 177 of the Railway Act, 1903, for leave to cross with its tracks the tracks of the Canadian Northern Railway Company on Main street, between River avenue and Norwood, in the city of Winnipeg, Manitoba.

72. Application of the municipality of Hamiota, under the Railway Act, 1903, to compel the Canadian Pacific Railway and the Canadian Northern Railway companies to instal a transfer track at the town of Neepawa, Manitoba.

73. Application of the Canadian Pacific Railway Company, under section 175 of the Railway Act, 1903, for authority to construct, maintain and operate a branch line from its main line or branch thereof, on Point Douglas avenue, in the city of Winnipeg, Manitoba.

74. Application of Messrs. Merrick & Anderson, of Winnipeg, to compel the Canadian Pacific Railway Company to give a lower freight rate on stoves.

75. In *re* fire protection in Manitoba and the Northwest Territories.

76. Application of the Canadian Northern Railway Company, under section 177 of the Railway Act, 1903, to cross the tracks of the Canadian Pacific Railway Company at the village of Carberry, Manitoba.

77. Application of the British Columbia Lumber and Shingle Manufacturers' Association, under the Railway Act, 1903, in *re* rates on east bound lumber and shingles charged by the Canadian Pacific Railway Company.

78. Complaint of the Canadian Manufacturers' Association and the Vancouver Board of Trade in *re* transcontinental rates for general class and commodity traffic.

79. Application of the city of Vancouver, under the Railway Act, 1903, to compel the Canadian Pacific Railway Company to provide proper protection at crossings on Alexander street, Columbia avenue, Voil street, Carrol street, Hastings street and Pender street, in the city of Vancouver.

80. Application of the British Columbia Electric Railway Company, under section 177 of the Railway Act, 1903, to joint its tracks with the tracks and line of the Canadian Pacific Railway Company at Granville street, over Falls creek, in the city of Vancouver.

81. Application of the British Columbia Distillery Company, under the Railway Act, 1903, for switching connection with the Canadian Pacific Railway Company.

82. Application of the Vancouver, Westminster and Yukon Railway Company, under section 139 of the Railway Act, 1903, to take certain lands in the city of Vancouver.

83. Application of the Corporation of the city of Revelstoke, under the Railway Act, 1903, to compel the Canadian Pacific Railway Company to furnish proper protection at Douglas street.

84. Application of Breckenridge & Lund, under the Railway Act, 1903, for authority to construct a tunnel under the track of the Crow's Nest Pass branch of the Canadian Pacific Railway.

85. Application of McGuire & Co., under the Railway Act, 1903, for an order requiring the United Coal Fields of British Columbia Railway to afford facilities for the carrying of the applicants' lumber to a point on the main line of the Canadian Pacific Railway Company.

86. Application of the Canadian Northern Railway Company, under section 177 of the Railway Act, 1903, for an order approving of the place and mode of crossing of the second or double track of the applicant company, as lessee of the Manitoba Railway Company and successors to the Northern Pacific and Manitoba Railway Company, across Pembina street and Pembina road, and Jessa, Corydon, MacMillan, Gertrude and Wardell avenues, and the lanes intersected by said line.

87. Application of the Canadian Northern Railway Company, under section 139 of the Railway Act, 1903, for authority to take certain lands, being parts of parish lots 18 to 32, inclusive, of the parish of St. Boniface, Manitoba, and for the closing of the Pembina road or highway.

88. Application of the Winnipeg, Selkirk and Lake Winnipeg Railway Company, under section 177 of the Railway Act, 1903, for an order permitting the crossing of Evelyn street, in the town of Selkirk, Manitoba, of the applicants' main line over the spur line of the Canadian Pacific Railway Company's Selkirk branch leading from the main line of the said Selkirk branch to the Red river.

89. Application of the Canadian Pacific Railway Company for a change of location of a portion of a branch line of the company's railway from Sudbury to Kleinburg, from a point on the main line east of Romford southerly to a point in block 44, in the district of Nipissing.

90. Application of the Grand Trunk Railway Company for permission to construct a branch line in the township of London, in the county of Middlesex, from a point on their line between London and St. Mary's to the Canadian Pacific Railway's line between London and Toronto, crossing various highways and the London Street Railway Company's line.

91. Application of the Canadian Pacific Railway Company for an additional crossing by the line of the Ontario and Quebec Railway of the Sarnia branch of the Grand Trunk Railway; also of the Northern Division of the Grand Trunk Railway in the vicinity of West Toronto Junction to the northwest of the city of Toronto.

92. Application of the Bay of Quinte Railway Company for an order extending the time fixed in the order of May 17, 1904, for the installation of the derails and interlocking device at the Tweed crossing from July 1, 1904.

93. Application of the Grand Trunk Railway Company for leave to construct a siding from the northern division of the Grand Trunk Railway to the Wilkinson Plough Works in the town of West Toronto Junction.

94. Application of the Canadian Pacific Railway Company to extend their siding at the village of Pontypool across the road allowance between lots 10 and 11, concession 2.

95. Application of the Grand Trunk Railway Company of Canada for authority to take, for the accommodation of the traffic of its railway and for a new station and station grounds certain lands and premises in the city of Guelph, as shown on plan filed on application.

96. Application of the Canadian Pacific Railway Company for an additional crossing of the northern division of the Grand Trunk Railway, in the vicinity of West Toronto Junction, to the northwest of the city of Toronto.

97. Application of the Preston and Berlin Street Railway Company, Limited, for leave to cross a spur line of the Grand Trunk Railway, running from their main line,

in the town of Waterloo ,and crossing Wilmot street, and switches leading from the said spur line at Charles and Josephine streets, in the town of Berlin.

98. Application of the Vancouver, Westminster and Yukon Railway Company for an order extending the time fixed in the orders of the board, dated respectively February 11 and May 13, 1904, A.D., for use of the crossing by the said company of the line of the Canadian Pacific Railway Company at Saperton, in the city of New Westminster, B.C.

99. The application of the Grand Trunk Railway for leave to construct a siding from one of their tracks on the Esplanade in the city of Toronto, to the Polson Iron Works, as shown on plans filed.

100. Application of the corporation of the town of Wingham to compel the Canadian Pacific Railway Company to protect their crossing of Josephine street and at the Mill Bridge, in the town of Wingham, with electric bells.

101. Application of the corporation of the town of Renfrew to compel the Kingston and Pembroke Railway Company and the Canadian Pacific Railway Company to furnish gates and watchmen at the crossing on Raglan street, in the town of Renfrew.

102. Application of the corporation of the city of Ottawa for an order directing the widening of the bridge on Somerset street, in the city of Ottawa, used by the Ottawa Electric Railway Company, over the tracks of the Canada Atlantic and the Canadian Pacific Railway companies.

103. Joint application of the county of Carleton and city of Ottawa for an order directing the removal of the ear embankment, constituting the eastern approach of the bridge of the Canadian Pacific Railway Company over the Rideau river, at New Edinburgh, and the substitution therefor of a bridge having a clear span of 150 feet, and the restoration of the island at this point to its original condition.

104. Application of the corporation of the city of Ottawa for an order directing the constructing of a subway on Bank street, under the tracks of the Canada Atlantic Railway Company.

105. Application of the Morrissey, Fernie and Michel Railway Company for an order authorizing the company to cross at grade the tracks of the British Columbia Southern Railway Company (Canadian Pacific Railway), at or near Fernie.

106. Application of the Morrissey, Fernie and Michel Railway Company to connect with the said British Columbia Southern Railway Company at or near Fernie.

107. Application of the Morrissey, Fernie and Michel Railway Company for an order authorizing the applicant company to construct and operate its railway at points shown on plan filed.

108. Application of the Grand Trunk Railway Company to expropriate certain lands between Yonge and Yorke streets, adjoining the Esplanade, in the city of Toronto, as shown on the plan filed.

109. Joint application of the municipalities of Fort William and Port Arthur to determine the terms and conditions of compensation, if any, to be awarded in respect of telephonic connection with the Canadian Pacific Railway stations at Fort William and Port Arthur.

110. Application of the town of Parkhill for protection of the crossing at the intersection of Main street, in the town of Parkhill, by the tracks of the Grand Trunk Railway Company, by placing a watchman at said crossing.

111. Application of the Grand Trunk Railway Company for leave to cross the line of the Canadian Pacific Railway Company between St. Thomas and Toronto, at a point about one mile west of the town of Woodstock, with the new second track now being constructed by the Grand Trunk between London and Paris.

112. Application of the municipality of the county of Elgin for an overhead crossing or subway at a point where the London and Port Stanley gravel road crosses the tracks of the Lake Erie and Detroit river railroad.

113. Application of the Niagara-Welland Power Company for leave to cross the line of the Grand Trunk Railway, known as the Allanburg branch, with the canal of

the applicant, in lot 138, township of Stamford, and for the right of way to erect a swing bridge at the point indicated on the said plan.

114. Application of the Niagara-Welland Power Company for leave to cross the railway line of the Niagara, St. Catharines & Toronto Railway Company with the canal of the applicant in lot 85, township of Stamford, and to erect a swing bridge at the point indicated on the said plan.

115. Application of the Niagara-Welland Power Company to settle and determine by order, the manner and character of construction and the method which the Toronto and Niagara Power Company shall adopt and use in crossing the located line or canal of the applicant, in lot 184, township of Stamford, and for an order directing the Toronto and Niagara Power Company to furnish plan and profile of proposed crossing.

116. Application of the Niagara-Welland Power Company for leave to cross the railway line of the Grand Trunk Railway in lot 9, township of Stamford, by means of pipe lines or flumes.

117. Application of the Toronto, Hamilton and Buffalo Railway Company to fill in the trestle bridge of the line of the applicant crossing the farm of William Anderson, in the township of Lancaster, being part of lot 49, concession 1, in said township, and to expropriate certain lands in connection therewith.

118. Application of the London Street Railway Company, to cross into the line of the applicant company, at grade, the track of the Pére Marquette Railroad, at Souwth Street, in the City of London.

119. Application of the Père Marquette Railroad Company to cross with their line the London and Port Stanley gravel road, in the township of Yarmouth, county of Elgin.

120. Application of the Corporation of the city of St. Thomas for a permanent order permitting the electric cars of the St. Thomas Street Railway, now operated by the corporation, to cross the tracks of the Canada Southern Railway and Michigan Central, at rail level, at William street and Elgin street, in the city of St. Thomas.

121. Joint application of the Corporation of the city of St. Thomas and the township of Yarmouth, for an order directing the Canada Southern Railway and Michigan Central companies to widen the superstructure which carries the tracks of the said companies over First avenue, on the dividing line between the municipalities, and to construct a subway.

122. Application of the James Bay Railway Company, under section 137 of the Railway Act, 1903, for the right of way over certain lands of the Canadian Pacific Railway Company, in the city of Toronto, south of Front street, and between Cherry and Parliament streets, in the city of Toronto.

123. Application of George Miller, owner of the west half of lot No. 8, concession 5, township of Enniskillen, county of Lambton, for a farm crossing over the tracks of the Canada Southern Railway.

124. Application of the Corporation of the city of St. Thomas for an order directing the opening of Balaclava street across the tracks of the Grand Trunk Railway, in the city of St. Thomas.

125. Application of the Canadian Manufacturers' Association and the Manufacturers of Metallic Shingles for a ruling of the board in respect of the advance in the classification of metallic shingles in carload lots from the 7th to the 5th class, by the Canadian Freight Association, representing the various railroad companies.

126. Application of the Montreal Street Railway Company to the board for leave to cross with the tracks of the applicant company the line of the Grand Trunk Railway system, at a point near the new canal bridge at Cotê St. Paul, at grade.

127. Application of the Middleton and Victoria Beach Railway Company, Limited, under section 177 of the Railway Act, 1903, for an order authorizing the junction of its railway lines with the line of the Dominion Atlantic Railway and the Halifax Southwestern Railway, at Middleton, Nova Scotia, at the point shown on plan filed, and for the crosing at said point and junction.

128. Application of the Vancouver, Westminster and Yukon Railway Company, under section 139 of the Railway Act, 1903, to the board for authority to take additional lands in the city of Vancouver, as shown on plans filed with the board.

129. Application of the Guelph and Goderich Railway Company, under section 177 of the Railway Act, 1903, for leave to cross the tracks of the Grand Trunk Railway Company (Wellington, Grey and Bruce division) near Guelph, Ontario, as shown on plan filed.

130. Application of the Guelph and Goderich Railway Company, under section 177 of the Railway Act, 1903, for leave to cross, at grade, the tracks of the Grand Trunk Railway Company at Milverton, Ontario, as shown on plan filed.

131. Application of the Guelph and Goderich Railway Company, under section 177 of the Railway Act, 1903, for approval of an overhead crossing of the tracks of the Grand Trunk Railway Company, at the town of Goderich, Ontario, as shown on plan filed.

132. Application of the Guelph and Goderich Railway Company, under section 177 of the Railway Act, 1903, for leave to cross the tracks of the Grand Trunk Railway Company at the village of Blythe, Ontario, as shown on plan filed.

133. Application of the Montreal Terminal Railway Company, under section 177 of the Railway Act, 1903, for authority to cross with its railway the tracks of the Montreal Street Railway at Davidson street, in the city of Montreal, and Letourneau avenue, in the town of Maisonneuve, as shown on plan filed.

134. Application of the Corporation of the city of Toronto for an order directing that Lansdowne avenue, in the city of Toronto, as it exists south of the Canadian Pacific Railway Company's tracks, be extended and connected with Lansdowne avenue as it exists north of the Grand Trunk Railway Company's tracks (Northern division) by means of a subway shown upon plan, and directing the construction of such subway by either the Grand Trunk or the Canadian Pacific Railway companies, and upon the terms and conditions in the order of the Railway Committee of the Privy Council, dated November 19, 1899.

135. Application of the Corporation of the city of Toronto, for an order fixing new dates for the commencement and completion of the bridge at the foot of Yonge street, in the city of Toronto, as fixed in the order of the Railway Committee of the Privy Council, dated January 14, 1904, and the order of the Privy Council dated October 7, 1904, and for such other direction as may be necessary for the carrying out of the said orders.

136. Application of the Montreal Terminal Railway for an order directing the Montreal Street Railway to remove two sets of rails placed across Ernest street, in the town of Maisonneuve, thereby obstructing and preventing the completion of the Electric Railway of the applicant company on the said street; or, in the alternative, for an order authorizing the necessary diamond crossing to be installed at the cost and expense of the Montreal Street Railway.

137. Application of the Grand Trunk Railway Company, under section 139 of the Railway Act, 1903, for authority to take certain additional lands lying north of Esplanade street and between Yonge street and York street, in the city of Toronto.

138. Application of the Guelph and Goderich Railway Company, under section 177 of the Railway Act, 1903, for leave to cross at grade the tracks of the Grand Trunk Railway Company at Milverton, Ontario, as shown on plan filed.

139. Application of the Canadian Pacific Railway Company for an order amending the order of the board, dated July 6, A.D. 1904, by adding thereto a clause fixing the amount that shall be charged by the Grand Trunk Railway Company for the interswitching of loaded and empty cars as mentioned in said order.

140. Application of the Canadian Pacific Railway Company, under the Railway Act, 1903, to the board for an order settling a case for reference to the Supreme Court of Canada, in connection with the application of the company for a change of location of a portion of a branch line of the company's railway from Sudbury to Klein-

burg, heard by the board on July 2, A.D. 1904, and referred to in the order of the board of the same date.

141. Application of the Grand Trunk Railway Company of Canada, under sections 139 of the Railway Act, 1903, to the board for authority to take certain lands in the municipality of the parish of Montreal, Quebec, as shown on plan filed, and being the property of the corporation of the city of St. Henri, the corporation of the city of Ste. Cunegonde, and J. Beaudoin.

142. Application of the Grand Trunk Railway Company of Canada, under section 139 of the Railway Act, 1903, to the board for authority to take certain lands in the municipality of the parish of Montreal, in the county of Hochelaga, Quebec, as shown on plan filed, and being the property of the Electric Fire-proofing Company of Canada, Limited.

143. Application of the Grand Trunk Railway Company, under section 139 of the Railway Act, 1903, for authority to take certain additional lands lying north of the Esplanade and between Yonge and York streets, in the city of Toronto; and for the settlement of the minutes of the order therein.

144. Application of the corporation of the city of Toronto to the board to vary or rescind order of November 16, 1904, granting to the Canadian Pacific Railway Company the right to expropriate a strip of land 24½ feet wide, across lots 8, 9, east half of 10, 15, 22, 23 and 27, plan 5A, in the city of Toronto, and containing a provision in regard to a proposed street extending from Church to Berkeley streets, as therein set forth.

145. Application of the Grand Trunk Railway Company, under section 139 of the Railway Act, 1903, for authority to take, for the accommodation of the traffic of its railway and for a new station and station grounds, certain lands and premises in the city of Guelph, as shown on plan filed.

146. (*a*) Application of the corporation of the city of St. Thomas, for a permanent order permitting the electric cars of the St. Thomas Street Railway, now operated by the said corporation, to cross the tracks of the Canada Southern Railway Company and the Michigan Central Railroad Company at rail level, at William street and Elgin street, in the said city of Thomas.

147. (*b*) Application of the corporation of the city of St. Thomas for an order compelling the Michigan Central Railroad Company and the Canada Southern Railway Company to construct a subway on Ross street, in the said city, beneath the tracks of the said companies.

148. Joint application of the corporation of the city of St. Thomas and the township of Yarmouth for an order directing the Canada Southern Railway Company and the Michigan Central Railroad Company to widen the superstructure which carries the tracks of the said companies over First avenue and the dividing line between the municipalities, and to construct a subway.

149. Application of John A. Smith for an order compelling the Canada Southern Railway Company to construct a drain across their railway for the purpose of carrying the water off the lands of the applicant, being the east half of lot Number 8, and part of the west half of lot number 9, in the eighth concession of the township of Yarmouth.

150. Application of the corporation of the city of Niagara Falls, under the Railway Act, 1903, for permission to open Ellis street and Dickson street across the tracks of the Michigan Central Railroad Company in the said city of Niagara Falls.

151. Application of Margaret H. Risekay and Jessie H. Baum, for an order directing the ere Marquette Railroad Company to provide a suitable and sufficient farm crossing over the line of the said railway at a point opposite the present crossing over the Pere Marquette Railroad and the Grand Trunk Railway, as shown on plan and profile of lot No. 8, in the 3rd and 4th concessions, Niagara river, in the township of Bertie and county of Welland.

152. Application of the Canadian Pacific Railway Company, under sections 175 and 186 of the Railway Act, 1903, for authority to construct a branch line from a point

on the railway of the Toronto, Grey and Bruce Railway Company, in the city of Toronto, about 350 feet east of the easterly end of Liberty street; thence to and along Liberty street to Fraser avenue, as shown on plan filed with the board.

153. (*b*) For leave to construct the said branch line across the siding of the Grand Trunk Railway Company, on Jefferson avenue, in the said city of Toronto, as shown on plan filed.

154. Application of the Grand Trunk Railway Company of Canada, under section 175 of the Railway Act, 1903, for authority to construct, maintain and operate a branch line from a point on that portion of the company's line between the city of Toronto and the city of Hamilton, across certain lands owned by the company, and northerly upon what is known as Pacific avenue, in the city of Toronto, to a point opposite the northern limit of lots owned by the Brunswick, Balke & Collender Company, as shown on plan filed.

155. Application of the James Bay Railway Company, under section 177 of the Railway Act, 1903, for leave to cross the tracks of the Canada Atlantic Railway (formerly the Ottawa, Arnprior and Parry Sound Railway), at grade, at a point between miles 3 and 3 of the location of the James Bay Railway Company from Parry Sound southward.

156. Application of the Guelph and Goderich Railway Company, under section 137 of the Railway Act, 1903, for leave to use and occupy by the said company certain lands and premises belonging to the Grand Trunk Railway Company, situate in the town of Goderich, Ontario, as shown on plan and book of reference filed.

157. Joint application of the Dominion Millers' Association and the Canadian Manufacturers' Association against the Grand Trunk Railway Company of Canada, *et al*, in *re* demurrage.

158. Application of the Grand Trunk Railway Company of Canada, under section 139 of the Railway Act, 1903, for authority to take certain additional lands north of the Esplanade and betweeen Yonge and York streets, in the city of Toronto, and for leave to vary order of the Board dated February 23, A.D., 1905, by omitting from the provisions of the said order the lands set out in notice served herein by the applicant company.

159. Application of the Canadian Pacific Railway Company, (*a*) under section 186 of the Railway Act, 1903, for leave to construct a spur across George street, in the city of Peterboro,' Ontario, as shown on plan filed; (*b*) under section 177 of the Railway Act, 1903, for leave to construct said spur line before mentioned across the railway of the Peterboro' Radial Railway Company on George street aforesaid, at the point shown on plan filed.

160. Application of the corporation of the city of Ottawa, under the Railway Act, 1903, for an order directing the construction by the Canada Atlantic Railway Company of a subway under the tracks of the said company at Bank street, in the city of Ottawa, and apportioning the cost of said work between the Canada Atlantic Railway Company and the Ottawa Electric Railway Company.

161. Application of the James Bay Railway Company, under section 177 of the Railway Act, 1903, for an order authorizing a crossing by the line of the applicant company and the line of the Grand Trunk Railway Company of Canada, Sutton branch, at grade level, at a point on lot 21, in concession 8, of the township of East Gwillinbury, county of York, Ontario.

162. Application of the Department of Public Works of Canada, under the Railway Act, 1903, for leave to cross, at rail level, with a proposed wharf, the tracks of the Canadian Pacific Railway Company, opposite the town of Pembroke, Ontario, as shown on plan on file with the Board.

163. Application of the Canadian Northern Railway Company, under section 137 of the Railway Act, 1903, for an order approving of the use by the applicant company, for the purpose of its right of way, of land owned by the Canadian Pacific Railway Company in the north half of section 30, township 6, range 4 W. P. M., between mileage 12 and 13 of the Canadian Northern Railway, west of Sperling, Manitoba.

164. Application of the Canadian Pacific Railway Company for an order directing the Canadian Northern Railway Company to provide and construct a signal and interlocking and derailing plant at the crossing of its line at Carberry, Manitoba, in accordance with the terms of the Order of the Board, dated August 11, A.D., 1904.

165. Application of the Canadian Pacific Railway Company exercising as lessee the powers and franchises of the Ontario and Quebec Railway Company, under section 139 of the Railway Act, 1903, for authority to take for the convenient accommodation of the public and the traffic of its railway certain lands in the town of Perth, Ontario, being the property of L. Legault, more fully described in application No. 1435, filed with the Board.

166. In *re* complaint of the Farmers' Association of Canada, and the Dominion Cattle Dealers' Association against the Grand Trunk Railway Company og Canada and the Canadian Pacific Railway Company to the board, alleging that discriminatory and excessive rates are charged for the transportation of cattle, in carloads, from stations on the respondent companies' lines to St. John and West St. John, N.B., and Portland, Me., for export.

167. Application of the respondent companies for a stay proceedings in regard to the order of the board, dated March 6, 1905.

168. Application of the municipality of the city and county of St. John, New Brunswick, for an order under section 187 of the Railway Act, 1903, directing the Canadian Pacific Railway Company to construct and maintain suitable gates (1) over the main street in the village of Fairville, where the said company's railway crosses the said main street (known as Main street crossing); (2) over the highway road in the village of Milford, where the said company's railway crosses the said highway (known as Milford crossing).

169. Application of George St. Pierre & Company, of Fraserville, Quebec, for an order under sections 252 and 253 of the Railway Act, 1903, directing the Temiscouata Railway Company to have its freight tariffs revised and reduced on the complaint that the same are unjust and ruinous.

170. Application of the corporation of the city of Toronto for an order directing that Lansdowne avenue, in the city of Toronto, as it exists south of the Canadian Pacific Railway Company's tracks, be extended to connect with Lansdowne avenue, north of the Grand Trunk Railway Company's tracks, by means of a subway, and directing the construction of said subway by either the Grand Trunk or the Canadian Pacific Railway Companies, and upon the terms and conditions of an order of the Railway Committee of the Privy Council, dated November 18, A.D., 1899.

171. Application of the Canadian Pacific Railway Company, under section 175 of the Railway Act, 1903, for authority to construct a branch line of railway along the east side of the River Don, in the city of Toronto, as shown on plan filed.

172. Application of the Canadian Pacific Railway Company, under section 186 of the Railway Act, 1903, for leave to construct said branch line across the existing highways as shown on said plan.

173. Application of the Canadian Pacific Railway Company, under section 186 of the Railway Act, 1903, for leave to cross with an additional track of its railway, the several streets already crossed by a single track known as 'The Don branch,' extending from its bridge over the Don at Winchester street to Parliament street, in the city of Toronto.

174. Application of the Township of York to rescind or vary an order of the Railway Committee of the Privy Council, dated January 5, 1891, requiring the Canadian Pacific Railway Company *et al.* to furnish certain protection at Dufferin and other streets, in the city of Toronto, on the terms set out in the said order.

175. Application of the Canadian Pacific Railway Company, under section 130 of the Railway Act, 1903, for approval of a deviation of its line in the vicinity of Lambton station, on lot 6, in the 3rd concession from the Bay, fronting on the Humber, in the township of York.

176. Application of the Canadian Pacific Railway Company for a change of location of a portion of a branch line of the company's railway from Sudbury to Kleinburg, from a point on the main line east of Romford, southerly, to a point in block 44 in the district of Nipissing.

177. Application of the Canadian Pacific Railway Company, under section 130 of the Railway Act, 1903, for a change of location of a portion of the branch line of company's railway from Sudbury to Kleinburg from mileage 19 to mileage 40.

178. Application of the Canadian Pacific Railway Company, under section 130 of the Railway Act, 1903, for change in location in a portion of the branch line of the company's railway from Sudbury to Kleinburg, from mileage 40 of said branch (South channel, French river), to mileage 58, Magnetawan river.

179. In *re* the complaint of the Farmers' Association of Canada and the Dominion Cattle Dealers 'Association against the Grand Trunk Railway Company of Canada and the Canadian Pacific Railway Company to the board, alleging that discriminatory and excessive rates are charged for the transportation of cattle in carloads from stations on the respective companies' lines to St. John and West St. John, N.B., and Portland, Me., for export; application of the complainants for a hearing in *re* stay of proceedings asked for by the respondent companies in regard to the order of the board, dated March 6, 1905.

180. Application of the Brant Milling Company, under the Railway Act, 1903, to the board for an order allowing the Grand Trunk Railway Company of Canada to continue cartage allowance of 2 cents per 100 pounds on all flour and feed shipped from the applicants' mill to Portland, Montreal, and points east in Canada.

181. Application of the Bell Telephone Company of Canada, Limited, to carry two additional wires over the tracks of the Canada Atlantic Railway at St. Polycarpe, Que., 200 yards west of Vars, Ontario.

182. Application of the Bell Telephone Company of Canada, Limited, to carry four additional wires over the tracks of the Canada Atlantic Railway.

183. Application of the Bell Telephone Company to carry wires across the tracks of the Canada Atlantic Railway at Casselman station, Ontario.

184. Application of the Bell Telephone Company of Canada, Limited, to carry an additional wire across the tracks of the Canada Atlantic Railway a half a mile west of Moose Creek station, Ontario.

185. Application of the Bell Telephone Company of Canada, Limited, to carry an additional wire across the tracks of the Canada Atlantic Railway west of Moose Creek station.

186. Application of the James Bay Railway, under section 177 of the Railway Act, 1903, for leave to place its tracks under the tracks of the Canadian Pacific Railway, in the Don valley, near Toronto, being a point in lot 3, concession 4, east of Union street, county and township of York.

187. Application of the James Bay Railway Company, under section 177 of the Railway Act, 1903, for leave to place its tracks at a point in the Don valley, near Toronto, being a point in lot 13, concession 2, from the Bay, township and county of York.

188. Application of Robert Reid, under section 186 of the Railway Act, 1903, to the board for an order directing the Canada Atlantic Railway Company or John R. Booth to construct the highways or streets known as Eighth, Ninth, Tenth, Eleventh and Twelfth avenues, as shown and laid down on plan of the south half of lot No. 36, in the First concession, Ottawa Front, in the township of Nepean, across the said company's railway, where the same separates the northern and southern portions of the south half of the said lot.

189. Application of the Canadian Pacific Railway Company, under section 175 of the Railway Act, 1903, to construct a branch line commencing at a point on its railway about two thousand feet north of Highland station to the property of the Canada Sugar Refining Company, and for authority to construct portions of said

branch line upon and along the highway south of the Lachine canal reserve, as shown on plan filed, and to divert portions of said highway to those parts of the lots fronting on the said highway which are coloured red on the said plan filed. Also for authority to take the lands so coloured red on said plan for the purposes aforesaid.

190. Application of the Grand Trunk Railway Company, under Section 175 of the Railway Act, 1903, to the board for authority to construct a branch line from the end of its line of railway alongside the Canada Sugar Refining Company's premises on St. Patrick Street, in the City of Montreal, and along St. Patrick Street and the Lachine Canal Bank to a point in the Town of Cote St. Paul at or near the Swing Bridge crossing the Lachine Canal, together with a branch therefrom to its line of railway leading from the main line to the Grand Trunk in St. Gabriel's Ward to the Town of Cote St. Paul, as shown on plan filed.

191. Complaint of Messrs. D. Rattray & Sons in *re* rate charged by the Canadian Pacific Railway Company on molasses shipped from Quebec to Montreal.

192. Application of the Corporation of the Town of St. Henri, Quebec, under Section 186 of the Railway Act, 1903, for leave to open St. Elizabeth and St. Jean Streets, under the tracks of the Grand Trunk Railway, by means of a subway.

193. Application of the Okanagan Telephone Company, Limited, under Section 195 of the Railway Act, 1903, to the Board for leave to carry its telephone wires over the tracks of the Shuswap & Okanagan Railway Company (Canadian Pacific Railway Co. on North Langill, Schubert, Seventh and Mission Streets, Barnard Avenue, and Coldstream Road, in the City of Vernon, B.C.

194. Application of the Canadian Pacific Railway Company, under Section 139 of the Railway Act, 1903, to the board for authority to take additional lands, adjoining their railway in the Town of Toronto Junction, in the County of York, Ontario, as shown on plan filed with the Board.

195. Application of the Bell Telephone Company of Canada, Limited, to carry two additional wires over the tracks of the Canada Atlantic Railway at St. Polycarpe, Quebec (adjourned from May 16, 1905.)

196. Application of the Corporation of the City of London, under Section 253, and other sections of the Railway Act, 1903, to the Board for an order limiting the time for completion by the Grand Trunk Railway Company of Canada, of the branch line authorized to be constructed under order of the board, dated July 6, 1904, and for a direction by the board that the said company apply, within the time to be fixed by the board to the board, for approval of the connection between the said branch line and the line of the Canadian Pacific Railway Company.

197. Application of the Canadian Pacific Railway Company, bearing date May 1, 1905, under the Railway Act, 1903, to the board for an order directing the Grand Trunk Railway Company of Canada to afford proper facilities for interchange of traffic between the said two companies over the branch line authorized to be constructed under the order of the board, dated July 6, 1904.

198. Application of the Canadian Pacific Railway Company, bearing date May 17, 1905, under the Railway Act, 1903, to the board for an order fixing the amount to be charged for the interchange of traffic and interswitching of cars over the branch line of the Grand Trunk Railway Company of Canada, to be constructed under order of the board dated July 6, 1904.

199. Application of the Corporation of the Town of Lindsay, Ontario, under the Railway Act, 1903, to the board for an order requiring the Grand Trunk Railway Company of Canada to maintain gates and provide watchmen at their crossings on Kent street and Lindsay street, in the Town of Lindsay, as shown on plan on file with the board.

200. Application of the Corporation of the Town of Lindsay, under the Railway Act, 1903, to the board for an order requiring the Lindsay, Bobcaygeon & Pontypool Railway Company, or the Canadian Pacific Railway Company as lessee thereof, and the Grand Trunk Railway Company of Canada, to erect and maintain gates and pro-

vide and keep watchmen where their railways cross King street, Caroline street, and Queen streets, in the Town of Lindsay, as shown on plan filed with the board.

201. Application of the Canadian Pacific Railway Company, as lessee of the Lindsay, Bobcaygeon & Pontypool Railway Company, under Section 177 of the Railway Act, 1903, to the board for authority to connect the tracks of the said Lindsay, Bobcaygeon & Pontypool Railway with the tracks of the Grand Trunk Railway in the Town of Lindsay; also for authority to construct the said track along Lindsay street and on part of Colbourne street in the said town.

202. Application of the Corporation of the Town of Lindsay, under section 253 and other sections of the Railway Act, 1903, to the board for an order directing the Grand Trunk Railway Company of Canada, and the Lindsay, Bobcaygeon & Pontypool Railway Company, and the Canadian Pacific Railway Company as lessee thereof, to make all necessary arrangements and to afford all persons and companies reasonable and proper facilities for the receiving, forwarding and delivering of traffic upon and from their several railways for the interchange of traffic between their respective railways in the Town of Lindsay, and for the return of rolling stock, and to fix reasonable tariff therefor.

203. Application of the Grand Trunk Railway Company of Canada, under Section 178 of the Railway Act, 1903, for an order directing the adoption and use at the present crossing of the line of the Grand Trunk Railway Company by the line of the Canadian Pacific Railway Company at lot No. 8, in the 9th Concession, Township of Yarmouth, County of Elgin, of an interlocking and derailing plant, in accordance with the terms of an agreement dated September 3, 1881.

204. Application of the Grand Trunk Railway Company of Canada, under Sections 130 and 184 of the Railway Act, 1903, (*a*) to lower the main line of the north division of the Grand Trunk Railway where it crosses the public highway between lots 10 and 11, 14th Con., Tp. of Innisfil, County of Simcoe; (*b*) to construct three tracks across the said highway; (*c*) to grade the said highway from the place where the proposed tracks will cross the same north and south thereof to enable the proper approaches to be made to the railway crossing.

205. Complaint of J. H. Duthie against the Grand Trunk Railway Company of Canada *re* demurrage.

206. Complaint of the American Cereal Company against the Grand Trunk Railway Company of Canada, in *re* rates on grain products for export from Peterboro and Lindsay, Ont., to Portland, Me., and St. John and West St. John, N.B.

207. Complaint of F. W. Grant alleging that the rates on coal from Midland to Orillia, Ont., charged by the Grand Trunk Railway Company, are excessive as compared with the rate from Suspension Bridge, Ont., to the same point.

208 (*a*). Application of the James Bay Railway under section 123 of the Railway Act, 1903, to the board for sanction of a portion of the location of its line, being mileage 37:55 as shown on plan filed with the board; (*b*) Application of the James Bay Railway, under section 186 of the Railway Act, 1903, to the board for leave to construct its railway along and across certain streets and esplanades in the city of Toronto.

209. Application of the Grand Trunk Railway Company of Canada under section 177 of the Railway Act, 1903, for an order authorizing the Company to cross the Canadian Pacific Railway Company's branch (Queen's Wharf), in the City of Toronto, with a new passing track west of Bathurst street Junction.

210. Application of the Guelph & Goderich Railway Company, under section 137 of the Railway Act, 1903, to the board for its approval of the applicant company obtaining a right of way over or through the lands owned and occupied by the Grand Trunk Railway Company of Canada, in the City of Guelph, and to take possession and use and occupy said lands for the purpose of constructing and operating a railway thereon.

211. Application of the Grand Trunk Railway Company of Canada to the board for an order varying the order of the board dated the 11th of May, A.D. 1904, by substituting an electric bell for the subway ordered.

212. Application of the Toronto & Hamilton Railway Company, under section 137 of the Railway Act, 1903, for an order authorizing the Company to take possession of, use and occupy the lands of the Grand Trunk Company on Burlington Beach, in the Township of Nelson, County of Halton.

213. Application of the Toronto & Hamilton Railway Company under section 177 of the Railway Act, 1903, for an order authorizing the company to cross the tracks the Grand Trunk Railway Company, Allanburg Branch, to Suspension Bridge, on Welland Division, in lot 144, Township of Thorold, County of Welland, Ontario.

214. Application of the Toronto & Hamilton Railway Company, under section 137 of the Railway Act, 1903, to use certain lands of the Grand Trunk Railway Company of Canada, in the Township of Etobicooke, County of York.

215. Application of the Vancouver, Victoria & Eastern Railway & Navigation Company, under section 123 of the Railway Act, 1903, for approval of plans, profiles, and books of reference covering the section of the location of the applicant company's between Keremeos and Princeton on the south side of the Similkameen river, in the Province of British Columbia.

216. Application of the Canadian Pacific Railway Company, as lessee of the Guelph & Goderich Railway, under section 177 of the Railway Act, 1903, for leave to cross the tracks of the Guelph Street Railway, as shown on plan and profile.

217. Application of the Canadian Pacific Railway Company, under section 177 of the Railway Act, 1903, for leave to cross the Grand Trunk Railway at Tottenham, Ontario, with its Toronto-Sudbury Branch by means of an overhead bridge.

218. Application of the Canadian Pacific Railway Company, under section 177 of the Railway Act, 1903, for leave to cross with its tracks, at rail level, the line of Midland Branch of the Grand Trunk Railway, near Coldwater, Ontario.

219. Application of the Canadian Pacific Railway Company, under section 177 of the Railway Act, 1903, for leave to cross with its tracks, at rail level, the line of the Grand Trunk Railway Company near Utopia Station, Collingwood Branch.

220. Application of the Canadian Pacific Railway Company, under section 177 of the Railway Act, 1903, for leave to cross with its tracks at rail level the line of the Grand Trunk Railway at Alliston.

221. Application of the Canadian Pacific Railway Company, under section 177 of the Railway Act, 1903, for leave to cross with its tracks, at rail level, the Penetang Branch of the Grand Trunk Railway at mileage 38.

222. Application of the Canadian Pacific Railway Company, as lessee of the Guelph & Goderich Railway, under section 177 of the Railway Act, 1903, for leave to construct a level crossing on the spur track of the Grand Trunk Railway, leading to Goldie's mill at Guelph.

223. Application of the James Bay Railway Company, under section 177 of the Railway Act, 1903, for authority to cross the track of the Grand Trunk Railway at a point just north of the Trent Canal on Lot 13, Concession 3, Township of Mara.

224. Application of the James Bay Railway Company, under section 186 of the Railway Act, 1903, authorizing the company to construct its railway on the Don River Road on Lot 7, Concession 2, East Yonge street, in the Township of York and County of York, at mileage 9:88, Toronto North.

225. Application of the James Bay Railway Company, under section 186 of the Railway Act, 1903, for leave to construct its railway across certain streets in the Town of Parry Sound, namely,—William, Gibson, Cascade and Church streets.

226. Application of the James Bay Railway Company, under section 177 of the Railway Act, 1903, for leave to place its lines or tracks across the lines or tracks of the Midland Division of the Grand Trunk Railway at a point near Beaverton.

227. Application of the Grand Trunk Railway Company, under section 186 of the Railway Act, 1903, for leave to construct two additional tracks across Dufferin street, in the City of Toronto.

228. Application of the Grand Trunk Railway Company of Canada, under section 175 of the Railway Act, 1903, to the board for an order authorizing that company to construct a branch line or siding from a point on its line of railway west of Logan avenue, in the city of Toronto, across Logan avenue, to the premises of the American Chicle Company, on Esplanade street, south of the property of the Grand Trunk Railway and west of Thackeray street.

229. Application of the Grand Trunk Railway Company under section 175 of the Railway Act, 1903, for an order authorizing the said Grand Trunk Railway Company to construct, operate, and maintain a branch line or siding, extending from a point on its line of railway on the Esplanade east of Church street, in the city of Toronto, upon, along and across part of Esplanade street to a point thereon opposite the western boundary of the lots occupied by Messrs. Murray & Laidlaw, east of Scott street.

230. Application of the Grand Trunk Railway Company of Canada for leave to appeal to the Supreme Court of Canada from an order of the board dated the 25th day of July, 1905, directing that the Grand Trunk shall, in consideration of the receipt of the amounts mentioned in the said order, afford all reasonable and proper facilities for receiving, forwarding, and delivering of traffic offered to it in cars, wholly or partially loaded, for passage over the branch line referred to in the order, and the lines of the Grand Trunk connected therewith, and of the interchange, by means of the said branch, of traffic between its lines and those of the Canadian Pacific upon the following, among other grounds, namely,—That the basis upon which the amounts to be charged and received by the Grand Trunk are computed, and the method of estimating the same, are erroneous and illegal.

231. Application of the Grand Trunk Railway Company of Canada, for an order varying the order of the board dated the 25th of July, 1905, directing the Grand Trunk Railway Company to afford proper facilities for the interchange of traffic between the Canadian Pacific and the Grand Trunk over the branch line authorized to be constructed under the order fixing the amount to be charged for the interchange of traffic and inter-switching of cars on the said branch line.

232. Application of the Corporation of the City of Toronto, under section 186 and 187 of the Railway Act, 1903, for an order directing the Grand Trunk Railway Company of Canada to construct and maintain gates with an automatic alarm bell, and to maintain a watchman for the same at the crossing of Greenwood avenue, in the city of Toronto, by the tracks of the Grand Trunk Railway.

233. Application of the Canada Atlantic Railway Company, under section 175 of the Railway Act, 1903, to construct a branch line along Argyle Avenue to the National Museum, in the City of Ottawa.

234. Application of the Preston & Berlin Street Railway Company, under the Railway Act, 1903, for permission to lease from and directing the Grand Trunk Railway Company, to lease to, so much of the Grand Trunk Company's right of way at the crossing of Caroline and Erb streets, in the town of Waterloo, as is necessary for the applicant company to lay part of its tracks as shown on plan filed.

235. Application of the Montreal Park & Island Company, under section 194 of the Railway Act, 1903, to carry its wires across the tracks of the Grand Trunk Railway Company at Cote St. Paul.

236. Application of the Toronto & Niagara Power Company, under section 194 of the Railway Act, 1903, for leave to cross the line of the Welland Railway (Grand Trunk Railway Company) near the Welland Canal, in the Township of Thorold, with electric transmission cables.

237. Application of the South-western Traction Company, under section 177 of the Railway Act, 1903, to cross the tracks of the Grand Trunk Railway near St. Thomas.

238. Application of the Municipality of the Parish of St. Canut.

(1) Under sections 204 and 214 of the Railway Act, 1903, to the board for an order directing the Great Northern Railway Company of Canada to operate and maintain a station at St. Canut, in the Province of Quebec, with good and sufficient accom-

modation and facilities for traffic, and to furnish adequate and suitable accommodation for the receiving and loading of all traffic orderel for carriage on the railway.

(2) Under section 211 of the Railway Act, 1903, directing the Great Northern Railway Company of Canada to provide, in connection with the operation of its trains, immediate communication between the conductors and engine drivers.

(3) Under section 212 of the Railway Act, 1903, for an order requiring the Great Northern Railway Company of Canada to adopt uniform rules for the operation and running of its trains.

(4) Under section 215 of the Railway Act, 1903, directing the Great Northern Railway Company of Canada to start and run its trains as near as practicable at regular hours fixed by public notices.

239. Application on behalf of the Canadian Pacific Railway Company and the Grand Trunk Railway Company hat the order of the board, in the matter of the complaint of the Dominion Millers' Association, issued on the 25th of July last, be held in abeyance pending an opportunity of the railways to present to the board the position in which they will be placed by the adoption of the rate basis offered.

240. Application of the James Bay Railway Company, under section 137 of the Railway Act, 1903, for leave to cross the Grand Trunk Railway Company's disused spur near Beaverton.

241. Application of the Salmon River & Northern Railway Company, under section 177 of the Railway Act, for permission to construct and operate a diamond or rail level crossing over the railway track of the Canadian Pacific Railway at a point approximately four miles east of Monte Bello, in the parish of Notre Dame de Bonsecours, in the county of Ottawa, by the track of the aplicant company, and to connect a switch or siding to be constructed by the applicant company with a switch or siding to be constructed by the respondent company.

242. Application of the Ottawa Electric Railway Company for leave to appeal to the Supreme Court of Canada from the judgment of the board, dated the 13th day of July, A.D., 1905, in *re* the application of the corporation of the city of Ottawa for the construction by the Canada Atlantic Railway Company of a subway at Bank street, in the city of Ottawa.

243. Application of the Grand Trunk Pacific Railway Company, under section 123 of the Railway Act, 1903, for an order approving of the location of a section of the main line of its railway from the east line of section 1, Township 12 N., Range 13, W. 1st Meridian, easterly to the east line of section 4, Township 12 N., Range 7, W. 1st Meridian, in the district of Portage la Prairie, Manitoba.

244. Complaint of William Jos. Pendsay, of the city of Vancouver, B.C., in regard to freight rates of the Canadian Pacific Railway.

245. Complaint of the Kaslo Board of Trade in *re* rates to Slocan Lake points.

246. Application of E. Williams & Company, of Winnipeg, in regard to rates from Rocksbury and Stonewall quarries, on stone, to Winnipeg, Manitoba.

Re car service rules.

247. Application of the town of St. Boniface for an order directing the Canadian Northern Railway Company to construct a subway at the crossing of Tache street in St. Boniface, Man., to change grade of levels on St. Boniface and Ober streets, and provide sufficient land to permit of the diversion of Thibault and Huron streets to the west of the company's right of way.

248. Application of the Canadian Northern Railway Company to erect a new station at St. Anne's, in the province of Manitoba, and to close the existing station.

249. Application of the Canadian Northern Railway Company for a junction with the tracks of the Manitoba & Northwestern Railway Company at Neepawa, Manitoba.

250. Application of the town of Portage la Prairie for permission to lay waterpipes across the tracks of the Canadian Pacific Railway Company and the Canadian Northern Railway Company, at the town of Portage la Prairie.

251. Application of the city of Winnipeg, under section 25 of the Railway Act, 1903, for an order requiring the Canadian Northern Railway to provide gates at its Main Street crossing, near Norwood Bridge.

252. Application of the Vancouver, Westminster & Yukon Railway Company, under the Railway Act, 1903, for an order to repeal, rescind, change, or vary the order of the board dated February 10, 1904, providing for the place and mode of junction with the Canadian Pacific Railway at Lytton and New Westminster.

253. Application of the municipalities of Burnaby and Coquitlan that the Vancouver, Westminster & Yukon Railway provide protection at certain places in the municipalities where it crosses the thoroughfares.

254. Application of the Esquimalt & Nanaimo Railway Company for permission to make a diversion for a short distance on the line of railway.

255. Application of the Wellington Colliery Company for permission o cross the tracks of the E. & N. Railway with their colliery railway.

256. Application of the Vancouver, Westminster & Yukon Railway Company, under section 39 of the Railway Act, 1903, for an order extending the time for one year from December 1, 1905, as provided in and by an order of the board made at Ottawa March 1, 1905, fixing the terms and conditions upon which the applicant company shall be allowed to cross the tracks at rail level of the British Columbia Electric Company on Park avenue.

257. Application of the British Columbia Railway Company, under section 194 of the Railway Act, 1903, for an order sanctioning the erection of a line of electric wire for the conveying of power across the yard tracks of the Vancouver, Westminster & Yukon Railway in the city of Vancouver, B..C.

258. Application of the municipality of North Vancouver to open certain streets across the tracks of the Vancouver, Westminster & Yukon Railway.

259. Application of the city of Vancouver, under section 196 of the Railway Act, 1903, subsection 2, for permission, when desiring to take means for drainage, to lay waterpipes or other pipes temporarily or permanently through, along, upon across, or under the railway or any works or lands of the Canadian Pacific Railway.

260. Application of the city of Vancouver, under section 196 of the Railway Act, 1903, to require the Canadian Pacific Railway Company to drain the water from the land lying south of their track, north of Water street, east of Camby street, and west of Carroll street, Vancouver.

261. Application of the city of Vancouver, under section 253 and 271 of the Railway Act, 1903, for the usual switching rights for the Vancouver, Westminster & Yukon and the Canadian Pacific Railway Companies, each over the other's tracks, on the usual terms.

262. Application of the city of Regina, under the Railway Act, 1903, in regard of crossing of the Canadian Pacific Railway on streets of the town, particularly with reference to the crossing at Hamilton street and Albert street.

263. Application of the municipality of MacDonald, Manitoba, under the Railway Act, 1903, for an order to compel the Canadian Pacific Railway Company to do a certain drainage work in the municipality of Macdonald, Starbuck and Lasalle.

264. Application of the Canadian Northern Railway Company with regard to switching charges between the Canadian Northern and the Canadian Pacific Railways on the Bannantyne Street spur.

265. Application of the Winnipeg Electric Railway Company for authority to place power transmission wires over the main line of the Canadian Pacific Railway and the Pembina branch, St. Boniface, Man.

266. Application of the Canadian Pacific Railway Company, under the Railway Act, 1903, for authority to construct and operate for a term of years over a portion of road allowance between concessions 8 and 9, township of North Dumfries. Also for an order closing a portion of the road allowance as shown on plan filed.

267. Application of the corporation of the town of Galt, under section 253 of the Railway Act, 1903, directing the Grand Trunk Railway Company and the Canadian

Pacific Railway Company to afford all reasonable facilities for the interchange of traffic between the respective railways and the town of Galt.

268. Application of John H. Walker and William Tuck to rescind order to the board dated April 15, 1905, permitting the Toronto and Niagara Power Company to deviate its line through lot 18, concession 3, township of Grimsby ; (2) Application of James W. Alway to rescind said order as above.

269. Application of the Toronto & Hamilton Railway Company under the Railway Act 1903, for an order authorizing the company to privde an undercrossing of the Grand Trunk Railway (main line division) and the Canadian Pacific Railway, north of St. Clair avenue, Toronto Junction.

270. Application of the Toronto & Hamilton Railway Company, under section 177 of the Railway Act, 1903, for leave to cross the tracks of the Grand Trunk Railway Company (Allanburg branch) in lot 141, township of Thorold, county of Welland, at rail level.

271. Application of the Toronto & Hamilton Railway Company to expropriate lands at Mimico, the property of the Grand Trunk Railway Company of Canada.

272. Application of the Canadian Pacific Railway Company, under section 177 of the Railway Act, 1903, for leave to cross the track of the Toronto Railway, in the city of Toronto, at Queen street (Don bridge).

273. Application of the Canadian Pacific Railway Company, under section 177 of the Railway Act, 1903, for leave to cross the tracks of the Grand Trunk Railway (belt line) in the city of Toronto, as shown on plan filed.

274. Application of the Canadian Pacific Railway Company, under section 177 of the Railway Act, 1903, for leave to cross the tracks of the Grand Trunk Railway at Berkeley street, in the city of Toronto.

275. Application of the Canadian Pacific Railway Company, under section 175 of the Railway Act, 1903, for authority to construct a branch line (1) crossing Front street between Cypress and Beachall streets, to the Morse soap factory. (2) A spur line along part of the Don Esplanade, Toronto, to the premises of the Wm. Davies Co.

276. Application of the Lake Erie & Detroit River Railway Company, under section 139 of the Railway Act, 1903, for authority to take part of lot 40, on the south side of Talbot Road East, in the township of Southwold, county Elgin.

277. Application of the Erie Realty Company, Limited, under section 176 of the Railway Act, 1903, for an order compelling the Grand Trunk to construct and operate a branch line in the city of Toronto, as shown on plan filed.

278. Application of the Canadian Pacific Railway Company, under section 175 of the Railway Act, 1903, for authority to construct a branch line along Pacific avenue, in the city of Toronto.

279. Application of the Canadian Pacific Railway Company, under section 175 of the Railway Act, 1903, to construct a branch line along Atlantic avenue, in the city of Toronto.

280. Application of the Canadian Pacific Railway Company, under section 175 of the Railway Act, 1903, to construct a branch line along Mowat avenue, in the city of Toronto.

281. Application of the Grand Trunk Railway Company, under section 175 of the Railway Act, 1903, to construct a siding to the premises of the Meyer's Milling Company, in the town of Listowel.

282. Application of the corporation of the town of Waterloo, under section 186 and 187 of the Railway Act, 1903, authorizing the corporation to construct a suitable crossing where the Grand Trunk Company's tracks intersect John street, in the town of Waterloo.

283. Application of the James Bay Railway Company, under section 36 of the Railway Act, 1903, for an order amending the order of August 29. 1906, in *re* application of the James Bay Railway Company, under section 177 of the Railway Act, for an undercrossing of the Midland division of the Grand Trunk Railway on lot 13, concession 7, township of Thorah, county of Ontario.

284. Application of the Canadian Manufacturers' Association for the restoration of the old rule, No. 2, governing mixed carloads of freight, as in effect prior to the issue of Canadian Freight Classification No. 22, on shipments between points west of and including Port Arthur, and from points east of Port Arthur to points west thereof ; and as now in effect between points east of Port Arthur.

(2) Complaint of the Canadian Manufacturers' Association that rule No. 6, Canadian Freight Classification No. 12, respecting the minumum charge for articles necessitating platform cars for carriage is excessive and descriminatory as between United States and Canadian shippers; reduction being asked for from minimum 6,000, as at present, to 4,000 lbs.

(3) Application of the Canadian Manufacturers' Association for reduction in the additional charge demanded by the carriage under rule 7 of the Canadian Freight Classification in the case of goods classified to be carried at owner's risk, but shipped at carrier's risk.

(4) Application of the Canadian Manufacturers' Association for reduction of the minimum charge for single consignments, commonly known as the 'smalls' rate, as defined in rule 30, Canadian Freight Classification No. 12, from 35 to 25 cents.

285. *Re* proposed car service rules submitted for the approval of the Board of Railway Commissioners.

286. Complaint of the Dominion Millers' Association as set out in letters to the board of September 14 and 27, A.D., 1905, against the Grand Trunk Railway Company of Canada, alleging delay in the shipment of ex-lake grain from the Georgian Bay and Lake Huron Elevator ports and discrimination in favour of exporters as against the millers of Ontario in the allotment of empty cars for such grain.

287. Application of the Columbia & Western Railway Company, under section 257 of the Railway Act, 1903, for an order disallowing a tariff of the Red Mountain Railway Company, filed on October 3, A.D., 1905, as C.R.C. No. A33, on the ground that the said tariff is unjust and unreasonable, and restoring tariff C.R.C. No. A30 of the said Red Mountain Railway in lieu therefor.

288. Application of the Canadian Pacific Railway Company, as lessees of the Columbia & Western Railway, under section 177 of the Railway Act, 1903, for authority to connect the track of the Columbia & Western Railway with that of the Red Mountain Railway at Rossland, as shown on plans.

289. Application of the Canadian Pacific Railway Company, under section 130 of the Railway Act, 1903, for approval of change of location of the Toronto-Sudbury line between mileage 98 and 101, being from a point in the town of Parry Sound, southerly to a point in lot 141, concession A, township of Foley, in the district of Parry Sound.

290. Application of the Municipality of the City and County of St. John, N.B., for an order, under section 187 of the Railway Act, directing the Canadian Pacific Railway Company to construct and maintain suitable gates (1) over the main street in the village of Fairville, where the said company's railway crosses the said Main street (known as Main Street Crossing). (2) over the highway road in the village of Milford, where the said company's railway crosses the said highway (known as Milford Crossing). Hearing of argument on the question of cost of maintainance of protection in above crossings.

291. Application of the Canadian Pacific Railway Company, as lessee of the Guelph & Goderich Railway, under section 177 of the Railway Act, 1903, for leave to cross the tracks of the Guelph Radial Railway, as shown on plan and profile submitted therewith.

292. Application of the Brandon, Saskatchewan & Hudson Bay Railway Company, under section 177 of the Railway Act, 1903, for leave to cross the tracks of the Canadian Northern Railway at a point in section 31-1-18, west of the principal meridian, in Manitoba, in the municipality of Turtle Mountain.

293. Application of the Brandon, Saskatchewan & Hudson Bay Railway Company, under section 177 of the Railway Act, 1903, for leave to cross the tracks of the

Canadian Northern Railway at the town of Minto, in section 19-5-19, west of the principal meridian, in Manitoba.

294. Application of the Brandon, Saskatchewan & Hudson Bay Railway Company, under section 177 of the Railway Act, 1903, for leave to cross the tracks of the Canadian Pacific Railway at a point in the town of Boissevain, in section 23, township 3, range 20, west of the principal meridian.

295. Application of the municipal corporation of the township of Cornwall, under section 197 of the Railway Act, 1903, for permission to enter upon the lands of the Ottawa & New York Railway Company, where the same pass through the west half of lot No. 28, in the 27th concession of the township of Cornwall, for the purpose of opening up a watercourse.

296. Application of the Grand Trunk Railway Company of Canada, under section 139 of the Railway Act, 1903, for authority to expropriate certain lands in the parish of St. Polycarpe, county of Soulanges, province of Quebec, the property of Fabien Giroux, Adelard Houle, and Alfred Latrielle, all of the said parish of St. Polycarpe; said lands being parts of cadastral lots Nos. 174, 175, 177, 178, 180, and 181, in the said township of St. Polycarpe, range of the River Delisle, county of Soulanges.

297. Application of the Canadian Freight Association, under the Railway Act, 1903, to the board for approval of proposed supplements Nos. 5 and 6 to the Canadian freight classification No. 12.

298. Application of the corporation of the town of Lindsay and the Flavelle Milling Company for an order, under sections 214, 253, and other sections of the Railway Act, 1903, directing the Grand Trunk Railway Company and the Canadian Pacific Railway Company (lessees of the Lindsay, Bobcaygeon & Pontypool Railway) to afford reasonable and proper facilities for interchange of traffic between their respective railways in the town of Lindsay.

299. Application of the corporation of the township of Mornington, county of Perth, under the Railway Act, 1903, for an order directing the Guelph & Goderich Railway Company (Canadian Pacific Railway Company lessees) to desist from building the proposed embankment on the line of its railway in concessions 4 and 5 of the township of Mornington, deviating the highway, as shown on plan on file with the board under reference No. 16296, file No. 1030; and for an order requiring the railway company to construct an overhead crossing for said highway.

300. Application of Thomas Carbert, under the Railway Act, 1903, for an undercrossing on his farm on lot 24, in the 6th concession of the township of Hewlitt, where the said lot is crossed by the line of the London, Huron & Bruce Railway (Grand Trunk Railway).

301. Application of the municipal corporation of the township of Sarnia, under the Railway Act, 1903, for an order directing the Grand Trunk Railway Company to open a highway crossing between lots 1 and 17, in block B, in the survey of a portion of the Indian reserve in the township of Sarnia, county of Lambton.

302. Application of the municipal council of the township of Raleigh, county of Kent, under section 197 of the Railway Act, 1903, for an order approving of the character of certain works in connection with the Miller, Fuce & Waddock drain passing under the lands of the Lake Erie & Detroit River Railway, or the Père Marquette Railroad, and the Michigan Central Railroad.

303. Application of the municipal corporation of the township of Raleigh, in the county of Kent, under section 196 of the Railway Act, 1903, for an order directing the terms and conditions under which certain drainage work known as the Four Red Drain shall be carried on where the same crosses the lands of the Père Marquette Railroad Company.

304. Application of the municipal council of the township of Raleigh, county of Kent, under section 196 of the Railway Act, 1903, for an order directing the terms and conditions under which certain drainage work in connection with the Wright drain shall be done where the same crosses the lands of the Père Marquette.

305. Application of the Chatham, Wallaceburg & Lake Erie Railway Company, under section 177 of the Railway Act, 1903, to cross at grade the lines of the Grand Trunk Railway where the same intersects William street, in the city of Chatham.

306. Application of the Chatham, Wallaceburg & Lake Erie Railway Company, under section 177 of the Railway Act, 1903, for leave to cross the tracks of the Canadian Pacific Railway Company at William and Raleigh streets, in the city of Chatham.

307. Application of the Chatham, Wallaceburg & Lake Erie Railway Company, under section 177of the Railway Act, 1903, for leave to cross the track of the Père Marquette at Gilliard street, in the town of Wallaceburg.

308. Application of the Chatham, Wallaceburg & Lake Erie Railway Company, under section 184 of the Railway Act, 1903, for leave to carry and construct its line of railway and its power lines and telegraph and telephone lines along certain highways of the city of Chatham, in the town of Wallaceburg, county of Kent, being those mentioned in paragraphs 7 and 13 of the application filed, and across certain existing highways in the city of Chatham, in the townships of Dover and Chatham, being those mentioned in paragraph 12 of said application.

309. Application of the municipal corporation of the township of Sandwich East, county of Essex, under section 196 of the Railway Act, 1903, for an order directing the Grand Trunk Railway Company to provide, construct, and maintain a suitable highway crossing where the company's railway intersects the Lesperance road, in the village of Tecumseh, in the first concession of the township of Sandwich East.

310. Application of the corporation of the city of Toronto, to amend the order of the board, dated November 16, A.D., 1904, granting leave to the Canadian Pacific Railway Company to take certain additional lands, being parts of lots 8, 9, 10, 15, 22, 23 and 27, 5A on the Esplanade, in the city of Toronto.

311. Application of the corporation of the city of St. Catharines, under section 23 of the Railway Act, 1903, for an order directing the Grand Trunk Railway Company of Canada, the Niagara, St. Catharines & Toronto Railway Company, and the Port Dalhousie, St. Catharines and Thorold Street Railway Company, to contribute to the said municipal corporation certain sums in connection with the erection of the bridge at Queenston street, in the city of St. Catharines, as set out in said application.

312. Application of the James Bay Railway Company, under section 177 of the Railway Act, 1903, for leave to lay its lines and tracks across the lines and tracks of the spur extending from the belt line, so called, owned by the Grand Trunk Railway Company of Canada, on olt 13, concession 2, from the bay, township of York, county of York, at mileage 3.80, Toronto North.

313. Application of the James Bay Railway Company, under section 177 of the Railway Act, 1903, for authority to place its lines and tracks across the lines and tracks of the north division of the Grand Trunk Railway Company of Canada, at grade level, at a point near Washago, on Rama Island, county of Ontario.

314. Application of the Hamilton Radial Electric Railway Company for an order, under section 177 of the Railway Act, 1903, approving of the plans and profiles of the proposed crossing of the applicants' railway of the tracks of the Toronto, Hamilton & Buffalo Railway Company, in the cit yof Hamilton, as shown on plans on file with the board.

315. Application of the Grand Trunk Railway Company, under the Railway Act, 1903, for an order authorizing the company to construct a branch line or siding across Sterling road, about half a mile south of Davenport station.

316. Application of the Michigan Central Railroad Company, under section 177 of the Railway Act, 1903 for an order authorizing the said company to cross the tracks of the Niagara Falls, Weston Park & Clifton Tramway, owned by the Niagara, St. Catherines and Toronto Railway Company, at a point on Victoria avenue, at Niagara Falls, as shown on plan filed in connection with the branch line of the Michigan Central Railroad Company, authorized in order of the board dated, September 30, 1905.

317. Application of John Bertram & Sons Company, Ltd., of Dundas, Ontario, under sections 6, 7, 23, 25, 176 and 184 of the Railway Act, 1903, for an order direct-

ing the Hamilton, Dundas Railway Company and the Toronto, Hamilton & Buffalo Railway Company, or one of them, to construct and maintain a branchm line from the railway of the Hamilton & Dundas Street Railway Company on Hatt street, in the town of Dundas, to the lands and premises of the applicants.

318. Application of the Ontario Bee Keepers' Association, under the Railway Act, 1903, to the board for the reduction in rates on bee products and materials used in connection with the bee-keeping industry.

319. Complaint of John Wright & Sons, of Owen Sound, regarding the rates charged by the Canadian Pacific Railway Company on wheat from the company's elevator at Owen Sound to the complainant's mill.

320. Complaint of the Petrie Manufacturing Company, of Hamilton, in *re* the rating of the complainants' cream separators in the Canadian freight classification.

321. Application of the Grand Trunk Railway, under the Railway Act, 1903, for an order approving of the location of overhead bridges at Wellington and Ferry streets, in the city of Hamilton.

322. Application of the Balanced Ration Manufacturing Company of Montreal, under the Railway Act, 1903, for a lower classification of balanced rations.

323. Complaint of the R. W. Oliver Milling Company of Montreal, as set out in letter of August 30, 1905, against the Grand Trunk Railway Company of Canada in regard to the rates on grain products from Montreal to points west of Montreal, in the province of Ontario, to points in the maritime provinces.

324. Application of James Armstrong and John J. Cook, under section 196 of the Railway Act, 1903, for an order directing the Grand Trunk Railway Company of Canada to provide and construct suitable culvert where the company's railway adjoins their farm on lot 753, in the town of Lachine, in the province of Quebec.

325. Application of the James Bay Railway Company to set aside order of the board dated January 5, A.D., 1905, granting permission to the Grand Trunk Railway Company to make certain changes and extensions of the siding connecting their railway with the brick works of Robert Davies on the east side of Bay View avenue, in the Township of York.

326. Application of the Canadian Pacific Railway Company, under subsection 4 of section 25, and under section 32, of the Railway Act, 1903, to rescind, so far as it may affect the applicant company, an order of the board granted on the 5th day of January, 1905, authorizing the Grand Trunk Railway Company to construct or extend a spur line across lot 13 in the 2nd concession from the Bay, in the township of York.

327. Application of the Canadian Pacific Railway Company for an order approving of the plan of proposed changes in the interlocking plant, where the Canadian Northern Railway Company's track crosses the tracks of the applicants' railway at West Fort William.

328. Application of the James Bay Railway Company, under section 177 of the Railway Act, 1903, to place its lines or tracks across the lines or tracks of the Canadian Pacific Railway Company, Toronto-Sudbury branch, on lot 12, concession 2, of the township of Cleland, district of Nipissing.

329. Application of the James Bay Railway Company, under section 177 of the Railway Act, 1903, for leave to place its lines or tracks under the lines or tracks of the Canadian Pacific Railway Company at Little Key river, in the township of Mowat, in the district of Parry Sound.

330. Application of the Northern Extension Railway Company, under section 177 of the Railway Act, 1903, for authority to place its lines or tracks across the lines or tracks of the main line of the Canadian Pacific Railway Company between Keewatin street and Rosser road, in the township of St. John, immediately west of the city limits of the city of Winnipeg, Manitoba.

331. Application of the Ontario Power Company, Limited, under the Railway Act, 1903, for permission to cross the tracks of the Grand Trunk Railway, the Wabash Railroad, the Michigan Central Railroad, the Niagara, St. Catharines and

Toronto Railway Company, and the Niagara Falla Park and River Railway at lots 57 and 59 in the township of Stamford, with the transmission lines of the applicant company.

332. Application of the Toronto and Niagara Power Company, under section 184 of the Railway Act, 1903, for permission to cross with its wires the tracks of the Welland Railway (the Grand Trunk Railway Company) near the Welland canal, as shown on plans on file with the board.

333. Application of the Toronto and Niagara Power Company, under section 194 of the Railway Act, 1903, for leave to cross with its power wires the tracks of the Michigan Central Railroad at Montrose Junction, Ontario, as shown on plan filed with the board.

334. Application of the Canadian Pacific Railway Company, under section 186 of the Railway Act, 1903, for leave to construct a spur line from its main line at St. John, N.B., across Portland street, in the city of St. John.

335. Application of the Canada Southern Railway Company, under section 139 of the Railway Act, 1903, for authority to take additional land adjoining their railway in the township of Sandwich West, in the county of Essex, as shown on plan and book of reference filed with the board.

336. Application of the Canada Southern Railway Company, under sections 186 and 187 of the Railway Act, 1903, for authority to divert certain highways adjoining the said railway in the township of Sandwich West, as shown on plan on file with the board.

337. Application of the Northern Extension Railway Company, under section 177 of the Railway Act, 1903, for authority to place its lines or tracks across the lines or tracks of the Southwestern branch of the Canadian Pacific Railway in the township of St. James, immediately west of St. James street, west limit of the city of Winnipeg.

338. Application of the Northern Extension Railway Company, under section 177 of the Railway Act, 1903, for authority to place its tracks across the tracks of the main line of the Canadian Pacific Railway Company, between Keewatin street and Rosser road, in the parish of St. John, immediately west of the city limits of the city of Winnipeg, Manitoba.

339. Application of the Niagara, St. Catharines and Toronto Railway Company, under section 203 of the Railway Act, 1903, for approval of a plan of the proposed steel and concrete structure to replace present wooden bridge over the Grand Trunk Railway at Thorold, Ontario.

340. Complaint of the Boards of Trade of the British Columbia Pacific coast cities against the Canadian Pacific Railway Company regarding alleged discrimination in rates between Vancouver, British Columbia, and interior points as far east as Calgary, on the main line of the company, MacLeod, on the Crow's Nest branch, and the Kootenay district, and the rates granted from Winnipeg to Calgary, MacLeod, and points farther west, including the Kootenay district.

341. Joint complaints of the New Westminster Board of Trade, the Canadian Manufacturers' Association, the Vancouver Board of Trade, and others, respecting the rates charged by Canadian railways on transcontinental traffic originating in eastern Canada and carried to British Columbia Pacific coast points, as compared with traffic originating in eastern United States points and carried thence via the American railways, or by American and Canadian railways jointly, to the United States or British Columbia Pacific coast points.

342. Application of the Grand Trunk Railway Company, under sections 175, 177 and 186 of the Railway Act, 1903, for authority to construct and operate branch lines in the town of Toronto Junction, in the township of York, county of York, and province of Ontario, as shown on plan, profile, and book of reference on file with the board.

343. Application of the James Bay Railway Company, under section 177 of the

Railway Act, 1903, for leave to lay its track across the spur line of the Grand Trunk Railway Company at lot 13, concession 2, from the Bay, in the township of York.

344. Application of the Canadian Pacific Railway Company, under section 177 of the Railway Act, 1903, for leave to cross with its track the track of the Grand Trunk Railway Company, at Tottenham, Ontario, with its Toronto-Sudbury branch, by means of an overhead bridge.

The application is for extension of time for the temporary use of said crossing.

345. Application of the Canadian Pacific Railway, under section 177 of the Railway Act, 1903, for leave to cross with its track, at rail level, the track of the Grand Trunk Railway Company, Midland branch, near Coldwater, Ontario.

346. Application of the Canadian Pacific Railway Company, under section 177 of the Railway Act, 1903, for leave to cross with its track the track of the Grand Trunk Railway Company, Collingwood branch, near Utopia station.

347. Application of the Canadian Pacific Railway Company, under section 177 of the Railway Act, 1903, for leave to cross with its track the track of the Grand Trunk Railway Company, at rail level, at Alliston, Ontario.

348. Application of the Canadian Pacific Railway Company, under section 177 of the Railway Act, 1903, for leave to cross with its track, at rail level, the track of the Grand Trunk Railway Company, Penetang branch.

The applications are for extension of time for the temporary use of said crossings.

349. Application of the Canada Atlantic Railway Company (Grand Trunk Railway Company of Canada), under section 139 of the Railway Act, 1903, for authority to take certain lands in the city of Ottawa, in the county of Carleton, for the purposes of the said railway, being the property owned by James Cavanagh, as shown on plan filed.

350. Application of the Canada Atlantic Railway Company, under section 137 of the Railway Act, 1903, for authority to take and use certain land of the Grand Trunk Railway Company of Canada, at Nipissing Junction, Ontario.

351. Application of the Grand Trunk Railway Company of Canada, under sections 175 and 186 of the Railway Act, 1903, for leave to construct a branch line from a point on lot 3, concession 1, district of Muskoka, crossing Yonge street, Shaw street and Muskoka road, to the premises of the Anglo-Canadian Leather Company, Limited, and J. D. Shier Lumber Company, as shown on plan filed.

352. Application of the Grand Trunk Railway Company of Canada, under section 139 of the Railway Act 1903, for authority to take certain additional lands at Cote St. Paul, in the parish of Montreal, the property of J. Beaudoin, as shown on plan filed withe the board.

353. Application of the municipal corporation of the town of Almonte, under the Railway Act, 1903, for the better protection of Main street, Little Bridge street, and Bridge street, in the town of Almonte, where the said streets are crossed by the tracks of the Canadian Pacific Railway Company.

APPENDIX D.

SUMMARY OF THE PRINCIPAL JUDGMENTS DELIVERED BY THE BOARD FROM FEBRUARY 1, 1904, TO MARCH 31, 1906

APPENDIX D.

SUMMARY OF THE PRINCIPAL JUDGMENTS DELIVERED BY THE BOARD FROM FEBRUARY 1, 1904, TO MARCH 31, 1906.

No. 6.—The towns of Port Arthur and Fort William v. The Bell Telephone Company and the Canadian Pacific Railway Company.

The municipalities of these towns owned and operated a joint telephone system within the limits of the two towns, and applied to the board under section 193 of the Railway Act, 1903, for an order directing the Canadian Pacific Railway Company to allow the installation of telephone instruments on the premises and in the railway stations of the company to connect with the municipalities' exchange.

In May, 1902, and prior to the enactment of section 193, an agreement was made between the railway company and the Bell Telephone Company, under which the telephone company, for valuable consideration, was granted, for a period of ten years, the exclusive privilege of placing telephone instruments, apparatus, and wires, in the several stations, offices, and premises of the Railway Company in Canada, where the telephone company had established, or might, during the continuance of the agreement, establish telephone exchanges.

Hearings at Ottawa, February 16 and 29, 1904.

Judgment of Board, March 15, 1904.

Held, per Blair, chief commissioner (3 Can. Ry. Cas., p. 205): That the said agreement was valid and not void or voidable as being in restraint of trade or against public policy, and that an order made under section 193 should provide for payment of compensation upon just terms for all lawful rights and interests injuriously affected thereby.

Per Bernier, deputy chief commissioner : While the agreement is valid and compensation should therefore be allowed, the question of compensation should be reserved for future consideration and determined after hearing any case that might be presented by the Canadian Pacific or any other railway company in support of damages.

Per Mills, commissioner: That the agreement is in restraint of trade and against public policy, and that compensation should be awarded only for the use of the premises occupied by the municipalities' telephones, and the expense of operating them.

Order suspended pending further argument as to the question of compensation.

Upon questions of law the opinion of the chief commissioner prevails.—Section 10 of Railway Act, 1903.

A further hearing of this application on the question of compensation was had at Ottawa, October 12, 1904.

Judgment July 14, 1905.

Killam, chief commissioner (4 Can. Ry. Cas., p. 279): Held, adopting the former judgment of a majority of the board.

Compensation should be made to the railway company for the use of its stations and the interference with its property consequent upon such installation.

Compensation should also be made to the telephone company for the loss of the exclusive privilege of telephone connection with such stations.

The effect on the exclusive agreement between the telephone company and the railway company of installing such a municipal telephone system must be determined by the law of the province of Quebec where the contract was made.

The installation of such a municipal system would not of itself rescind the exclusive contract between the telephone company and the railway company. At most its only effect would be to give the injured party a right to have the contract rescinded. Quebec Civil Code, Art. 1065, Dupuis v. Dupuis, R. 72 R. 19 S.C. 500.

The evidence does not furnish a satisfactory basis for determining the compensation to be paid by the municipalities, and suggestions are made as to its ascertainment hereafter by the board or by arbitration.

Payment of such compensation, or the giving of proper security therefor, to both companies, should be a condition precedent to the installation of the system in each town.

Leave was given to state a case for the opinion of the Supreme Court whether the installation of the municipal system entitles the telephone company to a rescision of its contract with the railway company.

No. 66.—In the matter of the Shore Line Railway.

Complaint was made to the board that the Shore Line Railway, running between the city of St. John and the town of St. Stephen, in New Brunswick, was unsafe for traffic. The board caused its inspecting engineer to make an examination of the said line of railway, and upon his report, made an order forbidding the running of trains, cars or engines over the railway between certain points named. Against this decision and order a protest was made on behalf of the New Brunswick Southern Railway Company, the company now operating what was and is still known as the 'Shore Line Railway,' upon the ground that the board had no jurisdiction or authority to direct or enforce the stoppage of trains or the operation of said railway.

The undertaking of the Shore Line Railway Company was, by Act of the Parliament of Canada, chapter 63 of 58-59 Victoria, declared to be a work for the general advantage of Canada, and that Act provided that the Railway Act of Canada should apply to the company and its undertaking instead of the laws of the province of New Brunswick and the Railway Act of that province.

Later, the Shore Line Company defaulted in the payment of its bonds. Proceedings were taken in the courts of New Brunswick, as a result of which the railway was subsequently sold, and the sale was followed by an Act of the New Brunswick Legislature, chapter 74, 1 Edward VII., incorporating the New Brunswick Southern Railway Company for the purpose of acquiring, holding and operating all or any part of the Shore Line Railway; and also all the capital stock, bonds, rights, franchises, powers and privileges, and properties of the said Shore Line Railway; and by chapter 102 of 3 Edward VII., an Act of the said legislature was passed confirming the deed of conveyance of the property and franchises of the Shore Line Company to the New Brunswick Southern Railway Company.

Judgment June 7, 1904.

Blair, Chief Commissioner (3 Can. Ry. Cas., p. 277).

A railway company incorporated under the laws of a provincial legislature, whose undertaking is afterwards declared to be a work for the general advantage of Canada, is subject to the exclusive control of the Parliament of Canada and the Railway Act applies. No provincial legislature can resore control, legislatively speaking, to the provincial legislature.

No. 220.—Duthie v. The Grand Trunk Railway Company.

This was an application by J. H. Duthie of Toronto, against the Grand Trunk Railway Company for relief on account of its action in detaining three cars loaded with coal at Belleville to enforce payment of charges for demurrage on car service, and, in default of payment, disposing of the coal by private sale and applying the proceeds in payment of the freight and storage charges.

Hearing at Ottawa, June 27, 1905.

Judgment, August 24, 1905.

Killam, chief commissioner (4 Can. Ry. Cas., 305):

The Board of Railway Commissioners is a judicial, as well as an executive body, created to enforce the railway legislation of the Dominion Parliament, but not to supplant or supplement the provincial courts in the exercise of their ordinary jurisdiction. In making orders and regulations under sections 23 and 25 of the Act the board is not to adjudicate in respect to rights arising out of past transactions, but to lay down rules for future conduct. The board is not empowered to award damages or any other relief for any injury caused by an infraction of the Act, e.g., section 214.

Held, that any claim for damages for premature or improvident sale should be prosecuted by action in the provincial courts.

By the tariff of tolls approved by the Governor in Council under the Railway Act of 1888, railway companies were authorized to charge higher tolls than by a special tariff filed under the Act of 1903, which specifically provided for car service or demurrage charges. The latter were also recognized by the classification rules authorized by the board and in force at the time in question.

Held, that the company not having sought to charge the maximum tolls approved by the Governor in Council (of the nature of a standard tariff) must be understood as having accepted the goods for carriage at lowest rates conditional upon its right to make a charge for demurrage.

Held, that the rate charged was prima facie reasonable and that no order should be made against the railway company.

Re Car Service Rules.

Numerous complaints and objections were presented to the board respecting charges made by railway companies for demurrage or delay in the loading or unloading of cars by shippers or consignees, and the rules governing such charges.

The practice of railway companies, before the constitution of the board, was to charge lower tolls on goods in carload lots than for less quantities. This practice was sanctioned by the freight classification and has been followed in the tariffs authorized by the Railway Act, 1903.

It appeared to the board to be reasonable that railway companies which delivered cars to, or placed them at the disposal of, shippers or consignees, for loading or unloading, should have some means of limiting the time to be occupied in such loading and unloading, and should be authorized to impose a reasonable additional toll on traffic carried at carload rates for any detention or use of the cars or continued occupation of their tracks, beyond such time as would be reasonably required for loading, or unloading. It was felt, too, to be important in the public interest as securing the fullest possible use of railway cars, tracks, and equipment, that such delays should be discouraged.

With this object in view, and after giving every opportunity which was reasonably possible to the various interests affected to be heard upon the subject, the board, by order dated January 25, 1906, abolished and disallowed all tolls or charges theretofore charged or imposed by any railway company subject to its jurisdiction, for delay in, or additional time used in, the loading or unloading of cars, whether under the name of demurrage car rental, or car service, or otherwise, and all rules regulating the same, substituting therefor the tolls and rules set out at length in the order. (See Appendix H).

Said order, and the rules therein set forth, came into force and took effect the first day of March, 1906.

No. 42.—The Sydenham Glass Company v. the Grand Trunk Railway Company, Canadian Pacific Railway Company, Lake Erie and Detroit River Railroad Company, Wabash Railway Company, Michigan Central Railroad Company, and the Hamilton, Toronto and Buffalo Railway Company.

This was an application by the Sydenham Glass Company for lower special rates than the special rates agreed to by the railways interested, and which applied on shipments of glassware, bottles, and lamp chimneys from Wallaceburg, Ontario, on the line of the Père Marquette Railway Company to Toronto, Hamilton, Berlin, London, Ontario, and to Montreal, Quebec.

The original application covered the commodities named both in carload and less than carload lots, but on the hearing it was announced on behalf of the applicants that the application would be restricted to bottles in carloads.

Hearing at Toronto, June 20, 1904.

Judgment of board, July 30, 1904.

Per Blair, Chief Commissioner (3 Can. Ry. Cas., p. 409).

Bottles in carloads were formerly carried from Wallaceburg to Toronto, Hamilton, Berlin and Montreal at special rates less than the regular basis of fifth class. Upon the Railway Act coming into force on February 1, 1904, these special rates were increased.

It appeared that at the present rates the Glass Company cannot maintain its position in the home market against foreign competition:—

Held, that the rates should be reduced to the following scale, viz.: to London, 8 cents; to Toronto, Hamilton and Berlin, 13 cents; to Montreal, 23½ cents.

No. 21.—Scobell v. the Kingston and Pembroke Railway Company.

Complaint alleged (1) that discriminating rates were imposed on the transportation of cedar lumber, railway ties and poles of all kinds made from cedar, and used for railway purposes; (2) that unreasonbale and excessive rates were imposed on the transportation of the telegraph, telephone and trolley poles as compared with rates on lumber, &c.

Hearing at Ottawa, April 26, 1904.

Judgment of board, July 30, 1904.

Per Blair, Chief Commissioner (3 Can. Ry. Cas., p. 412).

It appeared that an increase had been made in the rates on cedar products without any material change in the rate on common lumber and similar products. This increase was made by the railway company to retard the shipment of cedar products required for its own use.

Held, a discrimination within the meaning of s. 253, s.s. 2,—the railway company ordered to cease from levying rates on cedar products in excess of the rates on other descriptions of lumber and their products. 'Common carriers in making rates cannot arrange them from an exclusive regard to their own interests, but must have respect to the interest of those who may have occasion to employ their services, and must subordinate their own interests to the rules of relative equality and justice.' (Reynolds v. Western N. Y. R. W. Co., 1 I.C. Rep. 685.)

No. 43.—The Sutherland-Innes Company and the Wallaceburg Cooperage Company v. the Père Marquette, Michigan Central, Wabash, Grand Trunk, and Canadian Pacific Railway companies.

This was a complaint against the increase of rates by the railways named on cooperage stock between points in eastern Canada, and more especially to the increase from Wallaceburg and other western Ontario points to Montreal for local delivery and for export.

Hearings at Toronto, June 20 and 23, 1904.

Judgment of board, July 30, 1904.

Per Blair, Chief Commissioner (3 Can. Ry. Cas., p. 421.)

Held, that rates on cooperage stock should not exceed rates on common lumber according to the mileage lumber tariffs of the railways, but such rates when specially reduced on account of water competition, &c., need not necessarily apply to cooperage stock. From points in western Ontario to Montreal, the maximum rate for local

delivery was fixed upon the evidence at 16½ cents, and for export, including 'terminal,' at 18 cents per hundred pounds.

No. 48.—Tower Oiled Clothing Company's case.

Application by the Tower Oiled Clothing Company, of Toronto, for a carload rating on oiled clothing, shipped in carload lots.

It appeared that carload shipments had been made from Toronto to Halifax for fishermen's use, and it was alleged that shipments might also be made to the Canadian Northwest for ranchers' use if the application were granted.

Hearing at Toronto, June 28, 1904.

Judgment of board, July 30, 1904.

Blair, chief commissioner (3 Can. Ry. Cas., p. 417):

Held, that although the discrimination involved in the difference between C. L. and L. C. L. rating has received tacit assent, a shipper has not thereby the right to demand a lower rate on carloads, unless possibly he can show that the carload rate demanded would pay reasonably for the service and that a refusal would injure his business. Upon the evidence a third-class rate for carloads of not less than 20,000 pounds from Toronto to Halifax, Winnipeg and Calgary and other points reached by applicants was ordered.

No. 22.—The United Factories (Limited) v. The Grand Trunk Railway Company.

Complaint alleged that a rate of 3 cents per 100 lbs. on logs from Penetanguishene to New Market, which the railway company had maintained for a number of years, from 1895 to November 16, 1903, conditional that the product of the logs should be delivered for carriage to the Grand Trunk Company, was on November 16, 1903, increased to 4 cents per 100 lbs., but subject to the same condition.

Hearings at Ottawa, April 28, and May 6, 1904.

Judgment of board, October 10, 1904.

Per Blair, chief commissioner (3 Can. Ry. Cas., p. 424).

Held, that since the increased rate is neither unjust, unreasonable nor contrary to some provision of the Railway Act, the application must be refused.

No. 23.—*Re* The Canadian Freight Association and Industrial Corporations.

This was an application by the Canadian Freight Association, on behalf of all the railways in Canada, under subsection 4 of section 275 of the Railway Act, 1903, for permission to make concessions from the current rates on material for construction and machinery for equipment of new industrial plants.

Certain of the railway companies, members of the association, had been in the habit of granting a reduction of 25 per cent on the rates on such material, &c.

Judgment, October 10, 1904, refusing application.

Blair, chief commissioner (3 Can. Ry. Cas., p. 427):

That although the board is prepared to give due effect to subsection 4 of section 275 of the Act, it must have a separate and distinct application in such case, so as to judge of the effect of its order upon other industries, shippers and dealers.

No. 44.—Ontario Fruit Growers' Association v. Canadian Pacific Railway Company *et al.*

Complaint alleged (1) unreasonable and excessive freight rates on fruits and (2) that the charges for icing in transit were too great.

Hearings at Toronto, June 21, 23 and 24, 1904.

By agreement between complainants and the railway companies, the following modifications were made in the classification:—

(*a*) Apples in boxes in less than carloads, from 2nd to 3rd class.

(*b*) Pears in boxes and barrels, L.C.L., from 1st to 3rd class, and in carloads from 3rd to 5th class.

Also the following commodity rates:—

(*c*) On fresh fruits (small), from the fruit districts to points in Eastern Ontario, Quebec, and the maritime provinces, fresh fruit shall be carried at 4th class rates in carloads of not less than 20,000 lbs. instead of 3rd class rates, and at 2nd class rates in L.C.L. of 10,000 lbs. and over instead of 1st class rates.

(*d*) And from points in Ontario and Quebec to Winnipeg, Portage la Prairie and Brandon, at fourth class rates in carloads of not less than 20,000 pounds, instead of third class.

Approved by board.

Judgment October 10, 1904.

Blair, Chief Commissioner (3 Can. Ry. Cas., p. 430):

Held, that the present system of making fixed charges for icing cars, irrespective of the actual cost of such service, is not based on sound principle, and must be discontinued; that the actual cost of the ice and the placing thereof in the cars should not be exceeded. Pending a decision of the board upon further consideration as to a reasonable charge, a charge of not more than $2.50 per ton of 2,000 pounds on the actual weight of the ice supplied was, in this instance, authorized.

No. 55.—The Pea Millers' Association v. Canadian Railway Companies.

The Pea Millers' Association complained that the railways charged higher rates from Ontario milling points to the sea-board on split peas for export than they charged on other grain products, such as flour and rolled oats for export.

Split peas for export were formerly carried upon the flour basis. The advance complained of commenced in October, 1902, and was made apparently under pressure. The McMorran Company, of Port Huron, complained to the Interstate Commerce Commission that Canadian railways were carrying split peas for export at the grain product rate, while it had to pay the higher rate of the Michigan roads.

The Michigan railroads opposed any reduction in their rates, and the result was that the rate was advanced on the Grand Trunk and other railways in Canada.

Hearing at Ottawa.

Judgment of board, October 10, 1904.

Per Blair, Chief Commissioner (3 Can. Ry. Cas., p. 433):

That the former basis of rates must be restored.

No. 124.—In *re* application of the Grand Trunk Railway Company for permission to make reduced rates on coal used for manufacturing purposes.

This was an application by the Grand Trunk Railway Company, under subsection 4, section 275, of the Railway Act, for authority to continue a difference in the rate of freight on bituminous coal of ten cents per ton between certain points on its line of railway, such reduced rates being in favour of the manufacturer as compared with that charged to the dealer or consumer.

The applicant company has been in the habit of allowing a rate of 80 cents per net ton on bituminous coal used for manufacturing purposes at Cobourg, carried from the Niagara frontier to Cobourg while the usual and customary rate was 90 cents on coal carried between the same points for other shippers and used for domestic purposes.

The company justified the difference in the rate on the ground that certain manufacturers in Cobourg would be unable to pay the higher rate and carry on business successfully.

Judgment, October 10, 1904.

Blair, Chief Commissioner (3 Can. Ry. Cas., p. 438):

That no evidence has been offered to sustain this claim; but even if proved, the reduction could not be allowed. The allowance of a reduction in the freight rate on

any article of merchandise to one class of shippers, and the refusal of the same rate to another class, is unjust discrimination, and forbidden by section 252.

(Castle v. B. & O. R.W. Co., 8 I. C. Rep., 333, approved.)

No. 56.—The Almonte Knitting Company v. the Canadian Pacific Railway Company and the Michigan Central Railroad Company.

The Almonte Knitting Company complained that the rates on coal to Almonte from the Niagara and Detroit frontiers were unreasonably high as compared with the rates to Carleton Junction, Ottawa, and adjacent stations. The rate to Carleton Junction, Ottawa, and adjacent stations is $2 per ton from the Niagara frontier, and $2.25 from Detroit, while the rate to Almonte is 40 cents higher, points on the lateral line from Carleton Junction being charged an arbitrary rate above the rate to Carleton Junction.

Hearing at Toronto, June 28, 1904.

Judgment of board, October 10, 1904.

Blair, Chief Commissioner (3 Can. Ry. Cas., p. 441):

Under certain conditions rates to a point on a branch or lateral line may be higher than to points on the main line, though at a less distance from the junction point; but such rates must not be unreasonable or disproportionately higher than to nearer points on the main line.

Held, that the circumstances warrant a higher rate to Almonte than to Carleton Junction and Ottawa; but as the arbitrary rate to Almonte on 10th class traffic was only 1 cent per 100 pounds (20 cents per ton) it must not be exceeded on coal between the same points.

No. 46.—*Re* metallic shingles.

This was a complaint by the Canadian Manufacturers' Association objecting to the approval by the Board of the Canadian Freight Classification No. 12, which, among other changes and additions, advanced metallic shingles from 7th to 5th class in carloads.

This classification No. 12 was issued by the railway companies in 1903, and superseded all previous classifications. It had never been approved by order in council, but was provisionally sanctioned by order of the board of July 16, 1904, pending consideration of some of the objections raised.

From January 1, 1884, when the first Canadian joint freight classification was issued, until November 1, 1884, none of these commodities were specially classified; but, on a latter date, a circular was issued by the railway companies making certain changes and additions by which, among other things, they placed metallic shingles in packages as L.C.L. 3, L.C.L. 5. This rating continued in force until March 1, 1883, when a reduction of one class was made, namely, to L.C.L. 4 C.L. 6.

In May, 1890, a further reduction was made on carloads, and until March, 1901, the classification stood at L.C.L. 4, L. 7.

In March, 1901, the rating was placed at L.C.L. 4, C.L. 5.

The complainants set up that these goods were in the 7th class for over ten years; that the change was never sanctioned by order in council; that no substantial reason had been shown for the advance; and that the retention of the previous classification was necessary in order to enable the complainants to compete on fair terms with wooden shingles, siding, &c.

The railway companies claimed that the former classification was a mistake; that the proper class in which to place such commodities was the 5th class; that the plate, which is the raw material used in the manufacture of these articles, was in the 5th class; and that it was both unreasonable and unfair to the railway companies to place the manufactured article in a class for which the rates are lower than those upon the raw material from which the article is made; and, also, that articles of the 7th class were then carried at lower rates than those at which articles of that

class were carried when these particular commodities were in the 7th class, and that they should not be obliged to lower their rates on these goods.

Hearings at Toronto, June 23, 24,, and 28, 1904.

Judgment, June 29, 1905.

Killam, chief commissioner: Held, that the reasonable and fair course would be to establish for these articles commodity rates equal to those at which they were carried immediately before the change of classification in March, 1900.

No. 133.—*Re* St. Pierre & Company and Temiscouata Railway Company.

This was a complaint by George St. Pierre & Co., of Fraserville, Que., alleging that the Temiscouata Railway Company was unjustly discriminating against the complainants in the matter of its freight rates, and applying for an order directing the railway company to revise and lower its freight rates.

Hearing at Rivière du Loup, April 19, 1905.

Judgment, July 5, 1905.

Killam, chief commissioner: The rates charged by the Temiscouata Railway Company were not unreasonable in view of the nature of the country which the railway traversed and of its traffice.

The standard freight tariff of the company was identical with the standard tariffs of the Grand Trunk Railway Company, the Canadian Pacific Railway Company, the Canada Atlantic Railway Company and most of the other railways in the provinces of Ontario and Quebec, and the same, also, as that of the Intercolonial Railway between its stations west of Lévis.

The rates charged in the special tariff filed by the Temiscouata Railway Company on various commodities such as are authorized by section 260, subsection 2, of the Railway Act, compared favourably with the joint tariffs on the same commodities issued by the Grand Trunk Railway Company and the Canadian Pacific Railway Company, in the province of Quebec, except such rates as were rendered necessary by competitive conditions and which did not prevail on the Temiscouata Railway.

The Temiscouata Railway Company had no special commodity tariff for grain and grain products in carloads.

Held, that in accordance with the common practice of other railway companies and in the interest of lumber camps upon or near its line, the Temiscouata Railway Company should prepare such a tariff on an equitable basis.

It appeared that the Temiscouata Railway Company had, previous to July, 1904, a proportional tariff on various classes of goods (according to the Canadian freight classification) from Rivière du Loup and Edmunston, on through shipments from points beyond, and it now charges on this through business its full standard rates as on strictly local busines, except on some traffic to Edmunston.

Held, that the company should state its reasons for withdrawing this proportional tariff, and on what grounds, if any, it objected to restoring it.

No. 2.—The Brant Milling Company v. the Grand Trunk Railway Company.

This was an application by the Brant Milling Company for an order 'allowing and instructing the Grand Trunk Railway Company to continue' an allowance heretofore made by the railway company for the cost of cartage on flour and feed shipped from the company's mill out to Portland and to Montreal and other points in the eastern part of Canada.

The allowance was withdrawn after the Railway Act, 1903, came into force, and it was claimed that its continuance was necessary to the existence of the applicant's business.

Hearing at Brantford, April 26, 1904.

Judgment, July 13, 1905.

Killam, chief commissioner (4 Can. Ry. Cas., 259).

SESSIONAL PAPER No. 20c

The Railway Act, 1903, requires equality in the tolls charged under substantially similar circumstances, and forbids discrimination between individuals, persons, companies and localities. Sec. 252.

No variation from the authorized tariffs of tolls can be made unless under circumstances or conditions specially provided for in such tariffs or by special tariffs of general application and not discriminating between different localities. Secs. 261, 262.

Held, that the application either for a continuance of the allowance previously made, or for a change in the authorized tariffs of tolls, in favour of the applicant alone, must fail.

Manufacturers' Coal Rates Case, 3 Can. Ry. Cas. 438 referred to; Stone v. Detroit, etc., 3 I. C. Rep. 613; Hezel Milling Company v. St. Louis, etc., 5 I. C. Rep. 57; *re* division of joint rates, 10 I. C. Rep. 681, followed.

No. 222.—Coal rates—Midland to Orillia.

Complaint of F. W. Grant alleging that the rates on coal from Midland to Orillia, Ont., charged by the Grand Trunk Railway Company, are excessive as compared with the rates from Suspension Bridge, Ont., to the same point.

Hearing at Ottawa, June 28, 1905.

Judgment, September 4, 1905.

Killam, chief commissioner: The board has found great want of uniformity in the rates charged by railway companies for the carriage of coal for short distances, and proposes to ascertain, if possible, whether this want of uniformity is unreasonable, or whether some attempt should be made to harmonize the rates for similar distances. In the meantime, as the rate charged by the Grand Trunk Company for the carriage of coal from Midland to Orillia is not, in itself, an unreasonable rate, the board will not interfere.

No. 263E.—Rates on stone from Stonewall and neighbouring points to Winnipeg.

This was a complaint by E. Williams & Co., A. Patterson & Co., Irwin & Son, and the Winnipeg Supply Company., alleging that the Canadian Pacific Railway Company, by increasing the rate on rubble and crushed stone from the complainants' quarries at Stonewall to Winnipeg from 2¾ cents per hundred pounds to 3 cents per hundred pounds, while continuing the rate of 2¾ cents to the Stony Mountain quarrymen, was unjustly discriminating against the complainants, and applying for an order (*a*) directing the railway company to restore the former rate of 2¾ cents from the complainants' quarries, or (*b*) fixing some other rate as a uniform rate from all the quarries on the Teulon branch.

Hearing at Winnipeg, September 13, 1905.

Judgment, November 23, 1905.

Killam, chief commissioner: In view of the facts that the traffic from Stonewall was carried for many years at the lower rate; that the railway company itself made its first rate from Gunton to Winnipeg the same, and that a promise had been made by the second vice-president of the company to some of the complainants that the 2¾ cent rate from Rockspur to Winnipeg would be protected, the board was of opinion that that rate was a reasonable one. That opinion was strengthened by reference to the rate of 2½ cents per 100 pounds charged by the same railway company for carriage of similar traffic from Milton, Campbellford, Credit Forks, Schaw and Orangeville to Toronto, at distances varying from 33 to 49 miles. (Stonewall is 20 miles, Rockspur 34 miles from Winnipeg.) The question of the propriety of the rates from Stony Mountain to Winnipeg should not now be considered.

Held, that a higher rate than 2¾ cents from Gunton, Rockspur and Stonewall was unreasonable, and that an order would go directing the disallowance of the 3 cent rate and the restoration of the 2¾ cent rate.

No. 8.—The Niagara, St. Catharines and Toronto Railway Company v. the Grand Trunk Railway Company.

This was an application by the Niagara, St. Catharines and Toronto Railway Company, under section 177 of the Railway Act, 1903, which empowers the board to order that a junction may be made of the tracks of one company with the tracks of another company, upon such terms, at such places, and in such manner as the board may determine, to intersect with its line the railway of the Grand Trunk Railway Company, called the Allanburg branch line or cut-off, to form a junction with the Grand Trunk Allanburg branch line at Stamford.

The evidence disclosed the fact that an agreement had been entered into between the Grand Trunk Company and the Wabash Railroad Company,—the application was, in fact, a joint one by the Niagara, St. Catharines and Toronto and the Wabash Company—under which the Grand Trunk Railway granted the Wabash Company, the joint user in common with itself of the Allanburg branch for a term of twenty-five years, and that the Wabash Company was then in use and possession of the said Allanburg branch jointly with the Grand Trunk Company upon the terms and conditions contained in the memorandum of agreement.

Hearing at Ottawa, March 8, 1904.

Judgment, April 5, 1904. granting order applied for.

Blair, chief commissioner (3 Can. Ry. Cas., p. 256):

The object of the Railway Act (sections 177, 253 and 271) is to insure that all reasonable and proper facilities for the handling, forwarding and interchange of traffic shall be afforded to the shipping public. For this purpose the board may, without the sanction and against the will of a railway company, permit a junction to be made with its line by another railway where in the opinion of the board such junction is reasonably necessary in the public interest and in the interest of traffic in the district through which the railway passes. The parties to a lease of a railway cannot by stipulation between themselves restrict the powers or discretion of the board to authorize such a junction.

No. 9.—The Niagara, St. Catharines and Toronto Railway Company v. the Grand Trunk Railway Company.

Application by the Niagara St. Catharines and Toronto Railway Company to rescind an order of the Railway Committee of the Privy Council, approving of the place of crossing by the branch line of the Grand Trunk Company's main line at Merriton, to the paper and cotton mills in that village, of the main tracks of the Niagara, St. Catharines and Toronto Railway.

It was alleged in support of the application that the conditions imposed upon the Grand Trunk Railway Company, and upon which that company was allowed to make the crossing, had not been complied with—that the Grand Trunk Railway Company has not paid, but has refused to pay compensation for the lands of the applicant company, which are occupied by the crossing and with its switches and sidings by the Grand Trunk Company under the said order of the Railway Committee.

Hearings at Ottawa, March 11 and 22, 1904.

Judgment, April 5, 1904.—Application refused.

Blair, Chief Commissioner (3 Can. Ry. Cas., p. 263.)

Where two railway companies differ as to the nature and extent of the protection prescribed by an order of the Railway Committee to be furnished at a crossing of two railways, and one company voluntarily provides the additional protection which it claims the other company should supply according to the terms of such order, the board will not, by an ex post facto order, direct the payment by the other company of the expenditure thereby incurred, and in default of payment order that the crossing be discontinued. In such cases the proper course is to apply to the court for an interpretation of the order.

The order of the Railway Committee directed that an interlocking signal system and all the necessary works and appliances for properly operating the same be provided at such crossing.

Held, that derails do not form part of the appliances required by such order, and a permanent watchman is not necessarily required.

Compensation is not allowed (1) for the use of the land of the senior company occupied by the crossing tracks of the junior company where no substantial injury is done to the lands of the senior company; nor (2) for interference with the business of the senior company, or for any other delays in the use of its railways due to precautions taken in the use of the crossing required for public safety. (S. 177, Railway Act, 1903.)

City of Toronto v. The Grand Trunk Railway Company and the Canadian Pacific Railway Company.

This was an application to the Railway committee of the Privy Council made in June, 1900, by the city of Toronto for an order to authorize and ratify the construction and maintenance of the overhead bridge adjoining York street, in the city of Toronto, and crossing overhead the railway tracks on the Esplanade. and directing the terms as between the city and the two railway companies according to which the costs of the works were to be borne by the respective parties, pursuant to secs. 187 and 188 of the Railway Act, 1888.

The construction of this bridge, known as the York street bridge, was provided for by the 7th and 8th clauses of the Esplanade Tripartite agreement, dated July 26, 1892, confirmed by Dominion statute 55 and 56, Vic., chap. 48.

The application not having been disposed of before the Railway Act, 1903, came into force, was heard by the board on May 27, 1904.

By the said Esplanade agreement, the Canadian Pacific Railway Company agreed to build a highway over the tracks of the railway companies—the portion of the cost to be borne by each to be settled by arbitration or paid equally by the C. P. R. and the city, in case the Grand Trunk Railway was found to be exempt from, or entitled to, indemnity against liability for any portion of the cost.

The rights of the Grand Trunk Railway, as to such exemption or indemnity were, by the agreement, to be decided by the submission to the court of a special case between the city and the Grand Trunk Railway.

After the bridge was built, and while an action brought by the city against the railway companies, in lieu of the special case was pending, this application was made.

Judgment, August 19, 1904.

Blair, Chief Commissioner (4 Can. Ry. Cas., p. 62.)

Application refused, the question involved not being of a public nature, but the settlement of a dispute of a private nature, which the parties, by their agreement, had left to be settled by the courts.

(The Merriton Crossing Case 3 an. R. Cas., 263, followed.)

No. 238.—James Bay Railway Company v. Grand Trunk Railway Company.

This was an application by the James Bay Railway Company, under section 177 of the Railway Act 1903, for leave to place its tracks across the tracks of the Midland Division of the Grand Trunk Railway Company at a point near Beaverton, in the township of Mara, Ontario.

At the time the application was made and for several years previous thereto, the Grand Trunk Railway Company had a single track at the proposed point of crossing, and up to the time of the hearing that company had never suggested that it intended to lay down any other than the one track.

The matter was heard at Ottawa on August 29, 1905, and an order issued as of that date authorizing an undercrossing at the point named. The order provided that for the purpose of the crossing the Grand Trunk Railway should, at the expense of the James Bay Company, raise its tracks for such distance on each side of the crossing as the chief engineer of the board should consider necessary to provide a proper grade and to such height (not exceeding two feet) over the then level of the tracks as the chief engineer should require. The order also provided that the ma-

sonry work of the undercrossing should be sufficient to allow of the construction of an additional track by the Grand Trunk Railway Company.

From this order the James Bay Company appealed to the Supreme Court of Canada on the question whether, under section 177 of the Railway Act, 1903, or otherwise, the board had jurisdiction to make the order, in so far as it directed the masonry work of the undercrossing to be sufficient to allow of the construction of an additional track on the line of the Grand Trunk Railway Company.

Appeal dismissed : 37 S.C.R. 372.

Later, by petition, dated May 8, 1906, the James Bay Railway Company appealed to His Excellency the Governor General in Council, under subsection 2 of section 44 of the Railway Act, 1903, to vary the said order of August 29, 1905, by striking out the provisions requiring the James Bay Company to provide for a second track of the Grand Trunk Railway Company.

This petition was also dismissed by order of the Privy Council, dated May 31, 1906.

No. 271.—Preston and Berlin Street Railway Company v. the Grand Trunk Railway Company.

This was an application by the Preston and Berlin Street Railway Company. under section 177 of the Railway Act, 1903, for leave to cross the tracks of the Grand Trunk Railway Company at Caroline and Erb streets, in the town of Waterloo, Ontario.

In order to avoid the crossings applied for it was suggested at the hearing, on behalf of the town, that the board should exercise the power it was alleged to possess under section 187 of the Act, and direct the Grand Trunk Railway Company to move its tracks so as to allow sufficient space for the running of the applicant company's line between Mr. Seagram's property and the line of the Grand Trunk Railway.

Hearing at Toronto, November 7, 1905.

Judgment, Killam, chief commissioner: The application to be dealt with at the present time is simply one to allow the two crossings at Caroline and Erb streets, and in the public interests the application must be refused. The Preston and Berlin Railway Company previously applied to the board for leave to use a small portion of the Grand Trunk Railway Company's land in order to dispense with the crossing. The company was incorporated solely under the provincial laws and the provision in the Railway Act giving the board power to authorize the use by one company of the railway tracks or the land of another, applies only to a railway within the authority of the board, authorized by Act of the Dominion Parliament, or a work declared to be for the general advantage of Canada.

The suggestion that the board attempt to exercise a power to compel the railway company, which already had a crossing over the streets, to move that crossing, not for the protection of the public, but as a matter of convenience to another railway, might be worthy of some consideration, but does not arise on the present application.

The town might succeed in an application to have the tracks of the Grand Trunk Railway Company moved and have the highway extended so as to cover the land of the Grand Trunk between the corner of the Seagram building and the tracks and a portion of it that is not already a highway. I would not say what view the board would take of it, nor how far it could be done with safety apart from the question of its being a proper exercise of the power under that section 187 that has been referred to. If the town wishes to do that they should make an application.

Later the application was renewed at the town of Waterloo, after the board had an opportunity of examining the locality.

Judgment, Chief Commissioner: The board finds that the inspection recently made of the locality has only confirmed its previous view that the crossings ought not to be allowed to be made; that the only apparent reason for such crossings is to enable the electric railway company to use property on which it desires to have its term-

inal station and yard, and that the board does not consider this a sufficient reason for adding these two additional crossings so close together, and upon such a curve, to the other sources of danger in Waterloo; that the fact that the railway company has chosen to so locate its terminal property, or that the council of the town of Waterloo is unwilling to allow the electric railway company to place its tracks on other streets does not seem sufficient to force the board, in the exercise of the discretion conferred upon it by law, to a different conclusion than that which it deems proper in the public interest; that the board regrets that the Grand Trunk Railway Company does not see fit to allow the electric railway company sufficient space for the running of its cars between Mr. Seagram's property and the line of the Grand Trunk Railway, but that the board finds that it has no authority to compel the Grand Trunk Railway Company to allow the Preston and Berlin Company the use of any portion of the land of the Grand Trunk Railway Company.

This being so, any change in the line of the Grand Trunk Railway Company at the street crossings would be of no benefit to the Preston and Berlin Company.

No. 307.—Chatham, Wallaceburg and Lake Erie Railway Company v. Canadian Pacific Railway Company.

This was an application by the Chatham, Wallaceburg and Lake Erie Railway Company, under section 177 of the Railway Act, 1903, for leave to cross the tracks of the Canadian Pacific Railway Company, lessees of the Ontario and Quebec Railway Company, at William and Raleigh streets, in the city of Chatham, Ontario.

By agreement made in 1888 between the town of Chatham and the Ontario and Quebec Railway Company, the company agreed to maintain on two streets gates and watchmen where the railway crosses the highway, and to permit crossings to be made over four streets by the Chatham Street Railway Company and such other companies or corporations as the town might from time to time authorize to construct and run street railways in Chatham.'

By by-law of the city of Chatham passed in 1905, the Chatham, Wallaceburg and Lake Erie Railway Company (incorporated by Act of Parliament of Canada, 3 Edw. VII., ch. 105) was authorized to lay down and construct a street railway in Chatham and was given extensive privileges of running passenger and freight cars by electric power on certain streets, including those crossed by the Ontario and Quebec Railway Company.

Hearing at Chatham, December 7, 1905.

Judgment, Killam, Chief Commissioner (5 Can. Ry. Cas.., p. 175.)

Held, that the applicants, although possessing greater powers than an ordinary street railway company, came within the terms of the agreement of 1888 as being a company authorized to construct and run a street railway in Chatham.

Held, also, that the consent of the railway company in the agreement of 1888, to permit crossings for street railway purposes did not amount to a consent to permit crossings for all purposes, nor require it to bear the cost of any extra precaution necessary in consequence of a street railway or other railway being built across its line, and that the extra expense incurred ought to be borne by the applicants.

No. 25.—City of Ottawa v. The Canada Atlantic Railway Company and Ottawa Electric Railway Company.

This was an application by the city of Ottawa, made on October 8, 1905, to the Railway Committee of the Privy Council for an order directing the construction by the Canada Atlantic Railway Company of a subway under its tracks on Bank street and apportioning the cost of such work between the Canada Atlantic Railway Company and the Ottawa Electric Company. The application was transferred to the board after the coming into force of the Railway Act, 1903.

The Ottawa Electric Railway Company, whose undertaking was declared by the Parliament of Canada a work for the general advantagts of Canada, was authorized by order of the Railway Committee of the Privy Council, to cross the tracks of the

Canada Atlantic Railway Company on Bank street, and by agreement the expense of protecting the crossing was borne equally between the two companies.

By an agreement dated June 20, 1893, between the city of Ottawa and the Ottawa Electric Railway Company, provision was made for the construction and operation of the works of the company over certain streets (including Bank street) of the city of Ottawa for a period of thirty years from the date of agreement. Under this agreement the company was obliged to pay the city annually the sum of $450 per mile of street occupied by its tracks for the first fifteen years, and the sum of $500 per mile thereafter.

By another clause in the agreement the company undertakes to pay $1,000 per mile on streets which are permanently paved. The agreement also provides that in the event of the city desiring to alter the grade of any street, it shall be entitled to do so without being liable to the company for any damage which it might sustain by reason of the interruption of traffic.

Hearing at Ottawa, April 11, 1905.

Judgment. July 13, 1905. Per Killam, Chief Commissioner (5 Can. Ry. Cas., p. 127) :

Held, that the city corporation should contribute equally with the steam railway company to the cost of the work.

Also, that the Electric Street Railway Company should likewise contribute to the cost of the work.

Ordered, that the cost of construction of the subway, including compensation for land damages, be borne by the parties in the following proportions: three-eighths by the city corporation, three-eighths by the steam railway company, one-quarter by the Electric Street Railway Company.

Leave was granted by the board on the application of the Ottawa Electric Railway Company to appeal to the Supreme Court of Canada from its order upon the following questions of law:—

1. Whether by reason of the terms of the agreement between the Ottawa Electric Railway Company of the city of Ottawa, dated June 28, 1893, the Ottawa Electric Railway should have been ordered to contribute to the cost of the work thereby ordered to be constructed.

2. Whether the Ottawa Electric Railway Company was entitled under said agreement, to have the city of Ottawa furnish to the Ottawa Electric Railway Company, for the use of the said company in the exercise of its running powers, a street or highway known as Bank street, including that portion of the said street where it is crossed by the tracks of the Canada Atlantic Railway Company (either with the existing grade or with a changed grade as proposed), upon terms as to payment or compensation as laid down in the said agreement, and whether if such was the effect of the said agreement, the Ottawa Electric Railway Company should have been ordered to contribute to the cost of the work, thereby ordered to be constructed.

Held, that the Electric Company was a company 'interested or affected' in or by the said work within the meaning of section 47 of the Railway Act, 1903, and could properly be ordered to contribute to the cost thereof (37 S.C.R. 354.)

No. 200.—*Re* Canadian Pacific Railway Company's branch east of the Don, Toronto.

This was an application by the Canadian Pacific Railway Company, as lessees of the Ontario and Quebec Railway Company, under section 175 of the Railway Act, 1903, for authority to construct a branch line of railway along the east side of the river Don, in the city of Toronto.

Hearing at Toronto, April 27, 1905.

Judgment, August 15, 1905, refusing application.

Killam, chief commissioner: It was not shown to the satisfaction of the board that such a branch was 'necessary in the public interest, or for the purpose of giving

increased facilitiues to business,' as required by subsection 4 of section 175 of the Railway Act, 1903.

The legislature had committed the interests of that part of the city, in a large measure, to the civic authorities. The board felt that it should not interfere with the exercise of their discretion except for grave reason, and that it should be left largely to them to decide whether any, or what, railway company should be allowed to construct a branch in that neighbourhood.

It did not necessarily follow that authority would be given to any company chosen by the city, but the fact that the city agreed to the building of such a line would tend to establish its importance, and the city's choice would have great weight, provided the terms appeared to the board to properly safeguard the interests of other railway companies as well as those of the public.

No. 257.—Grand Trunk Pacific Railway Company v. Canadian Pacific Railway.

The Grand Trunk Pacific Railway applied under section 123 of the Railway Act, 1903, for an order approving the location of a section of the main line of its railway from Portage la Prairie to the Little Saskatchewan river, in Manitoba.

The route map was approved by the Minister of Railways, as required under section 122 of the Railway Act, 1903, and by the Governor in Council.

It was objected on behalf of the Canadian Pacific Railway Company that the continuation of the proposed location of the applicant company's line to the boundary between Manitoba and the province of Saskatchewan would be within a very short distance, 9 or 10 miles, of the Pheasant Hills and Manitoba and Northwestern branches of the Canadian Pacific Railway Company, which was contrary to the intent and purpose of parliament as indicated by the Act incorporating the applicant company, which required the applicant company to keep a distance of approximately 30 miles from other roads, and which involved, therefore, a very important question of law, namely, as to the true construction and interpretation of the incorporating Act, and upon which the board might desire the opinion of the Supreme Court.

Hearing at Ottawa, September 4, 1905.

Judgment, Septetmber 4, 1905.

Chief Commissioner: It does not seem to me that there is any question of law involved in this case. The company obtained a special Act authorizing it to build a line of railway between certain points. Parliament has authorized that to be done, and it is not for this board to say that it shall not be done.

The Railway Act, which by its terms is to be read as one with the special Act, requires the approval by the minister of the route of the railway. After the minister has approved it, the route is to be deemed the route that the railway is to follow, and it cannot be altered except by the minister himself. The board has no arbitrary power to refuse to accept location plans which have been approved by the minister. After such approval the proper attitude for the board to assume is to consider that there is a company empowered by parliament to construct a railway upon the route so approved. The board has no right to say that the line shall not be built on that route. It must treat the location plans merely as plans of a part of the line according to that route located, and all it can say is as to whether the detailed location along that route shall be adopted or shall not.

There might be reasons why it should vary this a little one way or the other and still conform to the general route the minister has authorized.

Although the board should be very chary about questioning the minister's view, still it might not be found approving that location if it believed that the minister had taken a wrong view of the law, and that he had no power to authorize or sanction the route under the special Act of the railway company. A question of that kind is raised here. There is, to my mind, however, no doubt whatever that the Grand Trunk Pacific Company has authority to build on the route that has been chosen, and that the minister has authority to sanction that route.

The company is by its Act, given power to build railways from Moncton to the Pacific coast and certain points are specified through which it has to pass. The Minister would be bound by this.

The clause referred to as creating a limitation as to the route in the Northwest Territories does not bind the Governor in Council to anything as a matter of law. In the first place, it requires the location to be approved by the Governor in Council, and it says that he is to have regard to a certain principle; that he shall have regard to that principle except for the purpose of reaching common points. There is one exception. Then it says, or for other satisfactory reasons That leaves it open to the Governor in Council to say what are the satisfactory reasons. It says further that such location shall, as far as practicable (another exception), be constructed at such distance, generally not less than thirty miles from any other main line of railway, as the Governor in Council may deem reasonable. There is no limitation, in fact, as to the thirty miles. It is a suggestion thrown out by which the Governor in Council may, to a certain extent, feel himself bound to act. The very fact that some portion of the line is picked out, and certain considerations are pointed out to guide in the approval of that particular location, would indicate that the rest of the route is left open, as it would be to any other railway company under the general Railway Act, and its Special Act, when the latter has no particular limitation as to route.

Held, that there is not sufficient in the question of law raised to cause the board to submit the question to the Supreme Court before acting in the usual way, and that the orders should issue approving the plans.

No. 25.—Application of the Grand Trunk Railway Company, under section 139 of the Railway Act, 1903, for authority to take certain additional lands lying north of the Esplanade and between Yonge and York streets, in the city of Toronto, and for the settlement of the minutes of the order therein.

On April 19, 1904, an extensive fire took place in the business portion of the city of Toronto. On May 4, 1904, before proceedings had been taken by any land-owner to rebuild, this application, which included a portion of the burnt property, was made. A further application, covering more of the burnt properety was afterwards made on August 10, 1904.

The application was in the terms of the statute, to permit the applicants to expropriate the lands burnt over and other lands . . . . . for the purpose of the 'convenient accommodation of the public and the traffic on its railway.' The result of the application was that none of the owners affected had completed any work on the ground looking towards a restoration of the buildings which had been burnt.

Two important points raised at the hearing were :—

First, as to the jurisdiction of the board. It was claimed that sufficient ground was not laid, under section 139 of the Railway Act, to enable the board to entertain the application.

Secondly, as to the question of compensation to those interested in the land proposed to be taken.

Hearings, May 26, July 22, December 9, 1904, and January 5, 1905, at Ottawa, and December 22 and 23, 1904, at Toronto.

Judgment, February 23, 1905.

Killam, chief commissioner (4 Can. Ry. Cas., p. 290) :

The board may consider not merely the traffic coming to the station on the railway of the applicants immediately or from a distance, but also future traffic on the railway and the future accommodation of the public.

In dealing with the question of compensation, the board may require the applicants to do any act whatever, including the payment of money, in addition to the compensation ordinarily allowed under the statute, but any such additional compensation should be allowed only under very peculiar circumstances.

Held, that compensation should not be paid to the owners for business losses sustained since the fire and during proceedings taken before the board for leave to

expropriate, but interest from the date of the original application for such leave was allowed.

Bernier, deputy chief commissioner (dissenting) : The principles upon which compensation should be allowed are fixed by the Railway Act, and the board has no power to order payment of compensation for any other damage than that which the statute allows in the ordinary case of expropriating lands under the Railway Act.

Mills, commissioner (dissenting) : That compensation can be allowed under section 139, for business losses sustained while an application for leave to expropriate is pending, and that this was a proper case for allowing damages for such losses.

No. 183.—In *re* Grand Trunk Railway Company and cities of St. Henri and Ste. Cunegonde.

The Grand Trunk Railway Company applied for authority to expropriate, for the purpose of yard room, land owned by the cities of Ste. Henri and Ste. Cunegonde, in the province of Quebec.

Hearing at Ottawa, February 14, and at Montreal, February 22, 1905.

Judgment, May 2, 1905.

Killam, chief commissioner (4 Can. Ry. Cas., p. 277) :

Under sections 118 and 139 of the Railway Act, 1903, railway companies may expropriate the lands of municipal corporations used by them for municipal purposes.

No. 204.—Reid v. the Canada Atlantic Railway Company.

This was an application under section 186 of the Railway Act, 1903, by a private individual, to compel the Canada Atlantic Railway Company to make and maintain highway crossings over or under the line of railway at points adjoining lands of the applicant, and was based upon an alleged agreement between the applicant and the railway company, claimed to have been made by Mr. J. R. Booth on behalf of the railway company.

The existence and alleged terms of the agreement were disputed as well as the authority of Mr. Booth to bind the company in that respect. The railway was constructed through the lands of the applicant, and the right of way acquired from him. He afterwards laid out into town lots, with intersecting streets, lands adjoining the railway, and the application was to have certain of these streets carried across the line of railway.

The municipality had passed a by-law purporting to establish as public highways such streets without complying with section 632 of the Municipal Act, R.S.O. 1897, chapter 223.

It was objected that the applicant had no *locus standi* to be heard on such an application, which should be made by the municipality only, and that no such highway can be opened across the line of railway without the previous enactment of a by-law of the municipality to that effect, after fulfilment of these formalities.

Hearings at Ottawa, May 16, and June 6, 1905.

Judgment, June 9, 1905.

Killam, chief commissioner (4 Can. Ry. Cas., p. 272) :

1. Under section 186, either a railway company or other parties may apply for leave to the railway company, and possibly in some cases to other parties, to construct a highway.

2. The by-law of the municipality was imperative to establish a highway across the railway against the will of the company.

3. The Surveys Act, R.S.O. 1897, ch. 181, sec. 39, cannot create highways across the land of a railway company or give any right to the applicant to have his streets extended across the railway.

4. A railway company may, with the leave of the board, lay out and dedicate portions of its right of way for use as highways which the municipality could accept without passing a by-law for that purpose.

5. The applicant is only entitled to an order from the board authorizing the railway company to lay out and construct such highways. The by-law of the municipality may be considered an acceptance of such highways.

6. The board does not enforce specific performance of such agreements. It is not empowered to compel the railway company to construct the highway at the instance of the applicant.

7. As no other court or authority than the board can legally allow the railway company or any other person to construct the highway, the application should proceed for the purpose of enabling the board to determine whether it will give this permission.

No. 191. Guelph and Goderich Railway Company v. Grand Trunk Railway Company.

This was an application by the Guelph and Goderich Railway Company, under section 137 of the Railway Act, 1903, for authority to take possession of, use and occupy land of the Grand Trunk Railway Company at Goderich.

The land sought to be taken was a portion of a strip along the harbour of the town of Goderich upon the waterside of which the Grand Trunk Railway Company had a number of tracks and other improvements. The particular portion applied for was not occupied by the tracks or used in any way by the Grand Trunk Railway Company, but that company claimed that it would be likely to require, in the future, for its business at that point, two additional sets of tracks upon the land in question.

The applicant company desired to take and use not only the portion absolutely required for its tracks, but also a further strip for support.

The board's chief engineer reported that one additional track would meet all the reasonable requirements of the Grand Trunk Railway Company for the future and that the quantity he recommended that the Guleph & Goderich Railway Company be authorized to take was the least that would be reasonably required for its tracks and their support.

Hearing at Ottawa, March 21, 1905.

Judgment, July 17, 1905.

Killam, chief commissioner: Railway companies have been granted by the legislature very great powers to take property without the consent of the owners. In the exercise of these powers they frequently cause serious discomfort and inconvenience to individuals, and in many cases deprive parties of property urgently needed for business purposes.

Section 137 of the Railway Act, 1903, places railway companies under liability to be subjected to similar treatment to that which, by the general expropriation clauses of the Act, they are empowered to mete out to private individuals.

Parliament desires that the way should be kept clear for the construction of additional railways, and that existing railway companies shall not be allowed to monopolize the lands advantageously situated for railway purposes at any particular point.

The board is empowered by this legislation to authorize one railway company to occupy and use the lands of another, even to the serious loss and detriment of the latter. Due compensation being made therefor care should be taken to avoid such injury, except where the public interest imperatively requires it.

It is difficult to estimate in advance the probable requirements of the distant future. On such applications endeavour should be made to allow for future development; and, if it can be avoided, encroachment upon the property likely to be reasonably required for the purposes of the existing railway should not be authorized. On the other hand, the board must guard against the use by an existing railway company of an exaggerated estimate of its probable requirements for the purpose of placing at a disadvantage an incoming competitor.

It has not been shown that there is any need of even the one additional track for the purposes of the business of the Grand Trunk Railway Company in Goderich or the neighbourhood, or that there is any immediate prospect of its being required.

'If that time should ever arrive the board, or such body as shall then exercise its present authority, can make such provision as may seem meet.'

Held, that order should go authorizing the Guelph & Goderich Railway Company to take possession, use, and occupy the lands estimated by the engineer of the board to be required for its purposes, such compensation therefor to be paid by that company as shall be fixed by agreement between the two companies, or, in case they cannot agree, by the board.

Held, also, that while the board has the power to rescind or vary any of its orders, this order should expressly provide that it is subject to be varied or rescinded by the board; thus the parties will have full notice that such change may be made as future developments shall require.

No. 249.—Preston and Berlin Street Railway Company v. Grand Trunk Railway Company.

The Preston and Berlin Street Railway Company applied, under section 137 of the Railway Act, 1903, for authority to take possession of, use, and occupy so much of the lands of the Grand Trunk Railway Company's right of way at the crossing of Caroline and Erb streets, in the town of Waterloo, as is necessary for the applicant Company's crossing at these points.

The Preston and Berlin Company was incorporated by letters patent under the great of the province of Ontario.

Hearing at Ottawa, August 29, 1905.

Killam, Chief Commissioner: Section 137 gives to a company, if the board authorizes it, the power to take and use the land of a railway company. The words 'the company,' referred to in that section mean a railway company within the legislative authority of the Parliament of Canada.

The board has no jurisdiction to authorize the taking of the lands applied for.

No. 318.—Bertram & Sons' application—branch line.

This was an application by John Bertram & Sons, Ltd., of Dundas, Ontario, for an order directing the Hamilton and Dundas Street Railway Company and the Toronto, Hamilton and Buffalo Railway Company, or one of them, to construct and maintain a branch line from the railway of the Hamilton and Dundas Street Railway Company from Hatt street, in the town of Dundas to the lands and premises of the applicants.

The Hamilton and Dundas Street Railway Company was incorporated by Act of the Legislature of the province of Ontario, and its railway was never declared by the Parliament of Canada a work for the general advantage of Canada.

The contention on behalf of the applicants was that section 7 of the Railway Act, 1903, gave the board jurisdiction.

This section provides that 'every railway, steam or electric street railway or tramway, the construction or operation of which is authorized by a special Act passed by the Legislature of the province, now or hereafter connecting with or crossing a railway which, at the time of such connecting or crossing, is subject to the legislative authority of the Parliament of Canada, is hereby declared to be a work for the general advantage of Canada in respect only to such connection or crossing, or to through traffic thereon . . . . .'

The Toronto, Hamilton and Buffalo Railway Company is subject to the legislative authority of the Parliament of Canada.

Hearing at Toronto, December 11, 1905.

Judgment, December 11, 1905.

Killam, Chief Commissioner: These provincial railways are declared to be works for the general advantage of Canada in respect only of the making of the physical connection, the crossing of one by the other, and the through traffic between them. That does not include the making of sidings or the giving of facilities for traffic.

Its purpose is to make those railways authorized by the provincial legislatures subject to the Dominion Railway Act in respect of certain matters only, and not to make the whole of these railways, after they have once been connected, and become in one sense a connection of a Dominion railway, wholly subject to the Act for all purposes.

Held, that the Hamilton & Dundas Street Railway Company was not within the board's jurisdiction and that the board had no power to make an order directing it to give a siding.

No. 264. The Canadian Pacific Railway Company v. the Township of North Dumfries.

Application by the Canadian Pacific Railway Company for authority to construct and operate railway tracks for a term of years over the present line of a highway in the township of North Dumfries, Ontario, to close to public traffic a portion of such highway, and to open in lieu thereof a new road.

The company had a spur track running from its main line at Ayr to a mill, and from this spur line sidings were run into a ballast pit, crossing in their course the highway in question.

Arrangements had been made with the owners of lands adjoining the gravel pit on one side of the highway and adjoining the company's mill spur on the other side of the highway, for the acquisition of further lands containing gravel ; and the company desired to excavate farther back into the side of the hill to a depth much below the level of the highway, and for that purpose to cut away the soil of the highway a similar depth, and also for a period of fifteen years to divert the highway so that it would run around the company's land and be crossed on one side by the spur leading from the station at Ayr to the mill and gravel pit.

It was objected that the Railway Act did not authorize the diversion of a highway except for the purpose of its being crossed by or carried opposite the main line of the railway.

Hearing at Galt, November 6, 1905.

Judgment.

Killam, Chief Commissioner : Gravel is necessary for properly ballasting a line of railway and keeping it in a proper state of efficiency. The ordinary method of obtaining such gravel for use on a line of railway is to construct spurs or sidings to points where the gravel is to be obtained, and to carry it therefrom by railway locomotives and cars to the line on which it is to be used.

Section 141 shows that the acquisition of lands on which gravel is to be found, and the construction thereto of spur lines, are within the powers intended by parliament to be exercised by a railway company.

Where the railway company can acquire the lands containing the gravel, and have a right of way thereto, it is not necessary to take the steps prescribed by section 141. For the purposes of such spur line, the railway company can exercise the powers for the diversion of highways given by the Act, as well as for the purpose of the construction and operation of the main line of railway.

In order to the proper excavation of the gravel pit to the depth to which the gravel goes, and for the proper operation of gravel trains, the railway company requires to cut through the highway more than once. A single cutting across the highway of the ordinary width for one track, would be insufficient. In order to keep the highway on its present site in a fit state for travel, a long bridge or series of bridges would be necessary.

The railway company, in lieu thereof, can properly be authorized to divert the highway at this point for the period of time estimated by it to be necessary for the purpose of exhausting the gravel pit.

By the municipal law of Ontario, the municipality in which the highway is situated is entitled to dispose of gravel in the soil of a public highway, and to maintain trespass against any person taking the same. The railway company does not

desire to deprive the municipality of the gravel in the soil of the highway, and is willing to restore the site of the highway to a satisfactory condition for public travel at the conclusion of its operations.

Section 2, subsections (s) and (bb), 118, 119, 141, and 186 of the Railway Act, 1903, referred to.

Held, that the diversion should be allowed upon proper terms for safeguarding the interests of the municipality and of the public.

No. 263*b*.—T. D. Robinson & Son v. The Canadian Northern Railway Company.

This was an application by T. D. Robinson & Son, of the city of Winnipeg, for an order directing the Canadian Northern Railway Company to replace the siding wrongfully taken up by it from the applicant's property immediately adjoining the station and main line and yards of the said railway company, in the said city of Winnipeg, or any such other part of the applicants' yard as to the board may seem just; or, in the alternative, that general delivery of all freights consigned to the applicants be made to the siding at present erected close to the applicants' yards, and for such other relief as to the board may seem just.

The applicants were owners of lands immediately adjoining the main line passenger station and the yards of the railway company in the city of Winnipeg, and formerly had a private siding extending from a point on their land into the station yards of the company and connecting with the railway. The siding was constructed and owned by the railway company, who had, however, acquired no title to any part of the land of the applicants on which the said siding was placed.

The railway company later took up the siding, alleging, as a reason, that it was inconvenient for them to continue the use of it to the applicants, and as a result this application was made to the board.

It was objected, on behalf of the railway company, that the board had no jurisdiction to make an order as applied for; that the only section of the Railway Act empowering the board to order the construction of spur lines is 176, and unless the parties should consent to an order made with any other provisions, the board would be limited to making this order strictly in accordance with the provisions of that section.

Hearing at Winnipeg, September 11, 1905.

Judgment, January 6, 1906.

Killam, chief commissioner: In taking from the applicants the siding and railroad connection formerly enjoyed by them, the railway company deprived the applicants of reasonable facilities which the company should be directed to restore.

The applicants did not apply under section 176 of the Railway Act as owners of an industry for an order to compel the company to construct a branch or spur line. Their land adjoins the railway yards of the company, and no order was necessary to enable the railway company to construct a line upon its own land to the boundary line between its property and that of the applicants, or to make connection at such boundary line with a siding upon the applicants' land and transfer cars to and from such siding.

The siding and connection, and the privilege of loading cars and delivering goods for carriage on such a siding and of receiving and unloading goods by means thereof, may properly be required as facilities within the Act.

While the board does not hold that the railway company should be made to furnish similar facilities to every applicant, in view of the previous supply of the same to the applicants and of the company's practice in freely furnishing such accommodation to those engaged in the same and other branches of business, as well as the other facts and circumstances disclosed, these facilities should be regarded as reasonable and proper ones which the company should afford to the applicants.

Under all the circumstances, the discontinuance of the former service was unreasonable. Railway companies should not be allowed to furnish and cut off such facilities capriciously.

An order directing the railway company, in the general terms of section 253, to afford to the applicants all reasonable and proper facilities for the receiving, &c., would not be sufficient. The authorities cited by counsel for the company were not, in the opinion of the board, conclusive against its jurisdiction to direct specifically the continuance of previous facilities which have been unreasonably discontinued.

Held, that an order should go directing the railway company to restore the spur track facilities formerly enjoyed by the applicants for the carriage, despatch, and receipt of freight in carloads over, to, and from the line of the railway company and the connection for that purpose, between such spur track and a railway siding on the land of the applicants; the company to have the option of constructing the siding on the applicants' land, at the expense of the applicants, or of allowing this to be done by the applicants, who shall bear the expense of making the necessary connection. The company should also have the option of constructing the track from such point on its line, and to such point on the applicants' land, as it shall think proper.

Order issued February 19, 1906.

Note.—The railway company appealed to the Supreme Court of Canada from the order of the board, dated the 19th day of February, 1906, on the question of the board's jurisdiction to make the order. Appeal dismissed.

No. 263a.—Winnipeg Builders' Exchange.

This was an application by the Winnipeg Builders' Exchange for an order directing the Canadian Pacific Railway Company, the Canadian Northern Railway Company, and the Manitoba Railway Company to interchange freight of all grades and classes at the city of Winnipeg.

Hearing at Winnipeg, September 11, 1905.

Killam, Chief Commissioner : Railway companies are not entitled, under sections 214 and 253 of the Railway Act, 1903, to distinguish between different kinds of traffic by refusing to certain commodities the facilities for interchange which are given in respect of other commodities, but in view of the congested state of traffic on railways in Manitoba at that time, the board did not think it proper to direct that any change be made immediately in the practice theretofore followed in that respect.

Held, that an order should issue directing that on and after the 1st day of January, 1906, all freight in carloads shall, when carried over the railway of the Canadian Pacific Railway Company or the Canadian Northern Railway Company to the city of Winnipeg, or the town of St. Boniface, or delivered to such other company at Winnipeg or St. Boniface for carriage, be transferred by the one company to the other in the original car at some point of junction of their lines in the vicinity of St. Boniface or Winnipeg, when so consigned.

In view of the condition of the line along the west side of the Red River, commonly known as the 'transfer track,' and the total insufficiency of that line for the interchange of such traffic, the railway companies were left to make the interchange at such point as circumstances appeared to them to warrant.

No. 212. The Canadian Pacific Railway Company v. The Grand Trunk Railway Company.

This was an application by the Canadian Pacific Railway Company for an order directing the Grand Trunk Railway Company to afford proper facilities for the interchange of traffic between the said companies over the branch authorized by order of the 6th of July, 1904, to be constructed by the Grand Trunk Railway Company from a point on its line between London and St. Mary's to the line of the Canadian Pacific Railway Company, between London and Toronto, and fixing the amounts to be charged for such interchange of traffic and the inter-switching of cars over the said branch.

The only connection at or near London, between the lines of the two railways, is by this branch.

The Grand Trunk Railway Company's lines in and through the city of London were in existence long before the Canadian Pacific Railway was constructed. It had extensive terminal properties, including a large number of sidings to various business and manufacturing premises and an extensive business at that point. The terminal facilities and busines of the Canadian Pacific Railway Company at London on the other hand were comparatively small.

By means of this branch the Canadian Pacific Railway Company was given direct access to a large number of business premises in London, which it did not previously have.

Urged, on behalf of the Grand Trunk Railway Company, that as the proposed connection would be much more advantageous to the Canadian Pacific Railway Company than to it, the Grand Trunk Company should receive much the larger proportion in the division of rates for traffic interchanged between the two companies—much greater than that which would be a fair remuneration for the mere service rendered in the transportation of cars over this branch and its London terminal lines and the loading and unloading of the same.

Secs. 253, 266, 267, and 271 of the Railway Act, 1903 referred to.

Hearing at Ottawa, June 20, 1905.

Judgment, July 16, 1905.

Killam, Chief Commissioner : The provisions of the Railway Act which require railway companies thus to interchange traffic at connecting points are introduced, not for the purpose of benefiting one railway company at the expense of another, but solely in the interests of the public. The law cannot recognize anything in the nature of a good will of the business of either railway company thus affected, for which another should give compensation. The division between railway companies of the joint rates for traffic thus interchanged should be made upon the principle of giving reasonable compensation for the services and facilities furnished by the respective companies in respect of the particular traffic interchanged, and not by reference to the magnitude of the business of the company, or the other at particular points, or the respective advantages which each can offer to the other there, or a comparison of the loss which the one is likely to sustain with the gain likely to accrue to the other from the giving of the facilities which the law requires.

The board cannot properly deal with this question of the division of such rates or the allowance of charges for switching in a general way, and by reference to all the points in Canada where the railways may connect. In each case the nature and value of the service to be rendered and the facilities to be used must be taken into consideration.

The Grand Trunk Railway Company being obliged to furnish, for the carriage over its portion of the continuous line, for the receipt and delivery of the same, and for the loading and unloading of cars for the purpose, the same facilities as in respect of traffic passing over its own lines only or transferred to or by it at distant points of the Canadian Pacific Railway system, the apportionment of rates should be made upon this basis.

Held, that order should go requiring the Grand Trunk Railway Co. to afford all reasonable and proper facilities for receiving, forwarding and delivering all traffic offered to it in cars wholly or partially loaded for passage over the branch in question and its lines connected therewith and of unloaded cars so offered and of freight offered to it for carriage to and over the lines of the Canadian Pacific Railway by the medium of the said branch, and for the interchange by means of the said branch of traffic between its lines and those of the Canadian Pacific Railway Company, as well as between the lines of the Canadian Pacific Railway Company and those of other railway companies connecting with the lines of the Grand Trunk Railway Company, and providing that the rates to be charged for such traffic shall be those provided for by any joint tariffs in existence between the railway companies interested, and, in the event of there being none, the rates chargd by the Grand Trunk Railway Company between the same points, and, in the absence of either the rates charged by the Cana-

dian Pacific Railway Company between the same points ; also, that in the division of rates for such traffic, the Grand Trunk Railway Company shall be entitled to charge and receive the following tolls for switching freight and live stock traffic, in carloads, from and to the Canadian Pacific Railway at or near London by means of the said branch, namely :

(*a*) Between the point of connection of the Grand Trunk Railway interchange track and the Canadian Pacific Railway siding, and all delivery tracks and siding owned or controlled by, or connecting with, the lines of the Grand Trunk Railway between and including the Canadian Packing Company's plant on the east and the London Street Railway interchange, known as Springbank siding, on the west, except as provided in clause (*b*) ; one cent per one hundred pounds, but not less than five dollars per carload, for each complete haul in either direction ; no extra charge to be made for the movement of the empty car in the opposite direction.

(*b*) For the intermediate switching of through or joint freight and live stock traffic between the point of connection designated in clause (*a*) and the point of connection of the Grand Trunk Railway with the Père Marquette Railroad, three dollars per car, in either direction, regardless of the weight ; no extra charge to be made for the transfer of the returning empty car.

Held, further, that the order should also provide that all devices, such as free or assisted cartage or cartage allowances intended to equalize the facilities of the respective railways of the Canadian Pacific Railway Company and the Grand Trunk Railway Company for the collection and delivery of freight at or near London, except the customary system of cartage published in the freight tariffs of the respective companies be prohibited and that all preference, prejudice, and discrimination in such cartage system be prohibited.

Order dated July 25, 1905, issued.

Note.—An appeal ot the Supreme Court of Canada from board's order of July 25, 1905, now pending.

APPENDIX E.

REPORT

OF THE

CHIEF TRAFFIC OFFICER OF THE BOARD

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REPORT OF THE CHIEF TRAFFIC OFFICER OF THE BOARD.

OTTAWA, October 24, 1906.

SIR,—I submit herewith the report of the Traffic Department of the Board from February 1, 1904, to March 31, 1905, and from April 1, 1905, to March 31, 1906.

Subjoined is a statement of the freight and passenger schedules filed with the board between November 1, 1904, when, by order of the board, the railway companies commenced filing their tariffs, and March 31, 1905, and from April 1, 1905, to March 31, 1906, inclusive :—

TARIFFS AND SUPPLEMENTS RECEIVED TO AND INCLUDING MARCH 31, 1905.

FREIGHT.

Local tariffs	787		
supplements	416	1,203	
Joint tariffs	1,105		
supplements	1,364	2,469	
International tariffs	5,262		
supplements	6,241	11,503	15,175

PASSENGER.

Local tariffs	284		
supplements	178	462	
Joint tariffs	145		
supplements	107	252	
International tariffs	548		
supplements	458	1,006	1,720
Combined totals, freight and passenger			16,895

TARIFFS AND SUPPLEMENTS RECEIVED FROM APRIL 1, 1905, TO AND INCLUDING MARCH 31, 1906.

FREIGHT.

Local tariffs	422		
supplements	738	1,160	
Joint tariffs	953		
supplements	2,166	3,119	
International tariffs	3,328		
supplements	8,436	11,764	16,043

PASSENGER.

Local tariffs	405		
supplements	160	565	
Joint tariffs	188		
supplements	76	264	
International tariffs	914		
supplements	354	1,268	2,097
Combined totals, freight and passenger			18,140

GRAND TOTAL OF ALL SCHEDULES RECEIVED TO AND INCLUDING MARCH 31, 1906.

FREIGHT.

Local tariffs	1,209		
supplements	1,154	2,363	
Joint tariffs	2,058		
supplements	3,530	5,588	
International tariffs	8,590		
supplements	14,677	23,267	31,218

PASSENGER.

Local tariffs	689		
supplements	338	1,027	
Joint tariffs	333		
supplements	183	516	
International tariffs	1,462		
supplements	812	2,274	3,817
Combined totals, freight and passenger			35.035

The following orders relating to traffic on lines subject to the Railway Act, 1903, have been issued by the board from February 1, 1904, to March 31, 1905, viz.:—

March 9, 1904.—Order permitting railway companies to continue their reduced fares to clergymen and to students of universities, colleges and schools, to and from their homes.

June 28, 1904.—Reduction ordered in the rates on oiled clothing, in carloads, from Toronto to Halifax, Winnipeg, and Calgary.

July 16, 1904.—An order legalizing Canadian Freight Classification No. 12, with Supplement No. 1 and Ruling Circular No. 1, until such time as the board shall revise, alter, or amend the same.

July 30, 1904.—Railway companies ordered to cease charging prohibitive rates on cedar lumber, ties, &c., and to substitute tolls which shall not discriminate between cedar and other woods ; also to amend the Canadian Freight Classification by including rails, fence posts, telegraph poles, and ties with other forest products, instead of carrying these commodities as formerly by 'special contract' only.

July 30, 1904.—Order reducing rates on cooperage stock in carloads.

July 30, 1904.—Railway companies directed to reduce their rates on glass bottles, in carloads, from Wallaceburg, Ont., to Toronto, Hamilton, Berlin, London and Montreal

October 3, 1904.—Order regarding reduced rates on material and machinery for new industries. Companies directed to report applications to the board, which will deal with each on its merits.

October 3, 1904.—Order declining application of Grand Trunk Railway Company, for permission to charge a less rate on coal to Cobourg, Ont., for manufacturing purposes than charged to ordinary consumers and dealers.

October —, 1904.—Reduction ordered in the rates on coal from the Niagara and Detroit frontiers to Almonte, Ont.

October 10, 1904.—Order refusing application of the United Factories for a special rate on logs, Penetanguishene to Newmarket, Ont.

October 10. 1904.—Order revising and reducing the classification of fruit, and prescribing a maximum charge for icing fruit cars in transit.

October 10, 1904.—Order reducing rates on split peas, for export, to the same basis as flour, for export.

October 31, 1904.—Railway companies directed to desist from charging higher rates on cedar lumber from the mills in British Columbia than charged on pine, fir, and spruce.

December 29, 1904.—Order disallowing certain advanced freight tariffs on grain products from Ontario to the Maritime Provinces, which had been issued without legal notice, and directing the companies to make restitution to the shippers.

February 9, 1905.—Order prescribing conditions under which railway companies may make and report to the board special rates in certain cases, under section 275 of the Railway Act, 1903.

February 9, 1905.—Order prescribing under what circumstances the board will receive telegraphic notices of proposed tariff changes in freight rates under emergency conditions.

February 9, 1905.—Order authorizing the Canadian Northern Railway Company to carry material and machinery for new industrial works at Port Frances, Ont., at reduced rates.

March 6, 1905.—Order prescribing lower rates on cattle from Ontario to Montreal, St. John, West St. John and Portland, for export, so as to bring them more into harmony with those paid by United States shippers.

From April 1, 1905, to March 31, 1906, the following orders relating to traffic on lines subject to the Railway Act, 1903, have been issued by the board, viz :

April 15, 1905.—Railway companies ordered to discontinue charging higher rates on grain between local points in Ontario and Quebec than charged on flour and other grain products between the same points.

June 2, 1905.—Preferential coal rates from Port Stanley and Rondeau, Ont., ordered discontinued.

July 5, 1905.—Restoration ordered of rates formerly charged on metallic shingles, the increase of which had checked shipments.

July 13, 1905.—Cartage and other allowances by railway companies to shippers to offset disadvantages of location ordered discontinued, unless published in the companies' tariffs.

July 25, 1905.—Railways ordered to provide reasonable and proper facilities for the interchange of local traffic for loading and unloading at London, Ont., and tolls prescribed therefor.

July 25, 1905.—Reduction ordered in rates from Ontario on all traffic to Montreal, Quebec, and the Atlantic seaboard, for export.

September 5, 1905.—Railway companies required to place their rates on coal from frontier ports of entry, and lake ports, to interior points in Ontario on an equal mileage basis.

———— —, 1905.—Equalization of freight rates ordered to points between North Bay and Sault Ste. Marie, Ont., as between Toronto and Collingwood shippers.

September 19, 1905.—Order reducing rate charged at New Westminster, B.C., for switching grain to the distillery at Sapperton, and prescribing switching tolls within the New Westminster terminals.

October 14, 1905.—Reduction ordered in rates on stone from Manitoba quarries to Winnipeg.

October 17, 1905.—Canadian Pacific and Canadian Northern Railway Companies ordered to interchange carload freight in the original cars at Winnipeg and St. Boniface, Man., for shipment from, or delivery at, those points.

October 31, 1905.—Reduced rates ordered on beans, in carloads, from shipping points in Ontario.

November 15, 1905.—Provision made for the fair distribution of empty cars at Lake Huron and Georgian Bay ports, for the movement of northwest grain during car shortage.

November 28, 1905.—Interchange facilities ordered at Lindsay, Ont., between Grand Trunk and Canadian Pacific Railways, and tolls prescribed for the interchange service.

January 6, 1906.—New car service, or 'demurrage,' rules more favourable to the public than the old, promulgated by the board for use on all railways subject to its jurisdiction.

February 14, 1906.—Order reducing the rate charged by the Red Mountain Railway Company for switching ore at Rossland, B.C., for the Trail smelter.

February 14, 1906.—Reduction ordered in the rate on grain, in carloads, from the Canadian Pacific Railway Company's elevator at Owen Sound to unloading sidings within the company's terminals at the same place.

February 19, 1906.—Canadian Northern Railway Company directed to replace the siding to Messrs. Robinson & Sons's coal and wood yard at Winnipeg, which had been removed.

March 24, 1906.—Reductions ordered in the maximum carload weights for freight loaded in box cars longer than the standard length of 36 feet 6 inches.

March 24, 1906.—Additions to the articles which may be shipped in mixed carloads at carload rates.

March 24, 1906.—Reduction in minimum chargeable weight for light and bulky articles requiring platform cars for carriage.

In addition to the above mentioned, numerous changes to the advantage of the public, have been made from time to time in the Canadian Freight Classification ; a number of complaints have been adjusted informally by the board, and others have been amicably arranged between the parties at the suggestion of the board, or with its assistance.

I have the honour to be, sir,
Your obedient servant,

J. HARDWELL,
Chief Traffic Officer.

A. D. Cartwright, Esq.,
Secretary, Board of Railway Commissioners for Canada,
Ottawa.

APPENDIX F.

LIST OF EXAMINATIONS AND INSPECTIONS

MADE BY THE

ENGINEERING DEPARTMENT OF THE BOARD, COVERING PERIOD FROM FEBRUARY 1, 1904, TO MARCH 31, 1906

APPENDIX F.

LIST OF EXAMINATIONS AND INSPECTIONS MADE BY THE ENGINEERING DEPARTMENT OF THE BOARD, COVERING PERIOD FROM FEBRUARY 1, 1904, TO MARCH 31, 1906.

July 18, 1904.—Examination of the crossing of Avenue road, Toronto, Ontario, by Canadian Pacific Railway.

July 18, 1904.—Examination of the highway in the village of Jarvis, Ontario, crossed by the Grand Trunk Railway.

July 19, 1904.—Examination of the Hull Electric Railway crossing of the Canadian Pacific Railway, north of Central depot, Ottawa, Ontario.

July 19, 1904.—Examination of proposed siding of Grand Trunk Railway, Strachan avenue, Toronto, Ontario.

July 23, 1904.—Inspection of Lindsay, Bobcaygeon and Pontypool Railway.

July 29, 1904.—Examination of highway crossing, Grand Trunk Railway, township of Whitby, Ontario.

July 30, 1904.—Examination of the Preston and Berlin Street Railway crossing by Grand Trunk Railway spur tracks on Wilmot street, Berlin, Ontario.

August 2, 1904.—Examination of street crossings in the town of Renfrew, Ontario, by Canadian Pacific Railway.

August 31, 1904.—Examination of crossing of Canadian Pacific Railway by Peterborough Radial Railway, George street, Peterborough, Ontario.

August 31, 1904.—Examination of crossing of the Grand Trunk Railway by the Peterborough Radial Railway in the town of Peterborough, Ontario, at Water, Locke and Charlotte streets.

September 3, 1904.—Examination of crossing of the Bay of Quinte Railway over the tracks of the Canadian Pacific Railway at Tweed, Ontario.

September 13, 1904.—Examination of crossing of Narcisse Campbell by Central Vermont Railway, Stanbridge, Quebec.

September 13, 1904.—Examination of street crossing by the Grand Trunk Railway, at Actonvale, Quebec.

September 21, 1904.—Examination of proposed street crossing by the Quebec and South Shore Railway, in the town of St. Michel D'Yamaska, Quebec.

September 22, 1904.—Examination of the farm crossings, gates and right of way ditches on the Great Northern Railway at St. Paulin, Quebec.

October 3, 1904.—Examination of subway under the Grand Trunk Railway track near Beloeil station, province of Quebec.

October 4, 1904.—Examination of the crossing of the London and Port Stanley gravel road by the Lake Erie and Detroit River Railway, in the county of Elgin, Ontario.

October 4, 1904.—Examination of crossing of First avenue by the Canada Southern Railway and Michigan Central Railway at St. Thomas, Ont.

October 4, 1904.—Examination of J. A. Smith's property in reference to damage by the Canada Southern Railway.

October 4, 1904.—Examination of William and Elgin streets, crossed by the Canada Southern and Michigan Central Railways, St. Thomas, Ontario.

October 5, 1904.—Examination of the opening of Balaklava street, crossed by the Grand Trunk Railway, city of St. Thomas, Ontario.

October 6, 1904.—Examination of farm crossing of George Millar, Canada Southern Railway, county of Lambton, Ontario.

October 7, 1904.—Examination of crossing Main street, town of Parkhill, Ontario, by Grand Trunk Railway.

October 12, 1904.—Inspection of proposed crossing of the Canadian Pacific Railway by a road leading to wharf in the town of Pembroke, Ontario.

October 18, 1904.—Examination of crossing of the Grand Trunk Railway by the Peterborough Radial Railway, Locke street, Peterborough, Ontario.

October 20, 1904.—Inspection of proposed crossing of the Dominion Atlantic Railway by the Middleton and Victoria Beach Railway, at Middleton, Nova Scotia.

October 24, 1904.—Examination of crossings of the Fourth concession road by the proposed Quebec, New Brunswick and Nova Scotia Railway, in the parish of L'Ancienne Lorette, county of Quebec, P.Q.

October 25, 1904.—Examination of farm crossing on the land of William Anderson by the Toronto, Hamilton and Buffalo Railway, near Hamilton, Ontario.

October 26, 1904.—Examination of the farms and ditches of Charles Gelinas, Aimé Lemay, and others, in reference to damage by the Canadian Pacific Railway at Yamachiche, county of St. Maurice, Quebec.

October 29, 1904.—Examination of the crossing of the Grand Trunk Railway by the Niagara-Welland Power Company, county of Welland, Ontario, in lot 9.

October 29, 1904.—Examination of the crossing of St. Catharines and Niagara Central Railway Company by the Niagara-Welland Power Company, county of Welland, Ontario, lot 85.

October 29, 1904.—Examination of Allanburg branch of the Grand Trunk Railway, Niagara-Welland Power Company, county of Welland, lot 138.

October 29, 1904.—Examination of Dickson and Ellis streets, crossed by the Canada Southern Railway, in the town of Niagara Falls, Ontario.

November 2, 1904.—Examination of the crossing of the Stanley avenue by the Grand Trunk Railway at Richmond, Quebec.

November 14, 1904.—Inspection of proposed crossing of the Grand Trunk Railway by the Guelph and Goderich Railway at Milverton, Ontario.

November 19, 1904.—Inspection of the Grand Valley Railway for opening for traffic from Paris to Galt, Ontario, a distance of about 13 miles.

November 23, 1904.—Inspection of steel bridges on Bay of Quinte Railway between Tweed and Bannockburn, Ontario.

November 25, 1904.—Examination of crossing of the Grand Trunk Railway by the Guelph and Goderich, near Guelph, Ontario.

December 1, 1904.—Inspection of Orford Mountain Railway, Eastman Village, township of Potten, county of Brome, Quebec.

December 2, 1904.—Examination of street crossing in the town of Farnham, Quebec, by the Stanstead, Shefford and Chambly Railway of Central Vermont Railway.

December 3, 1904.—Inspection of proposed farm crossing of the Père Marquette Railway, near Bridgeburg, Ontario.

December 10, 1904.—Inspection of crossing a spur line of the Grand Trunk Railway by the Montreal Street Railway at Cote St. Paul, in the city of Montreal, Quebec.

December 10, 1904.—Inspection for the opening of traffic for the Levis County Electric Railway, through the town of St. Romuald, county of Levis, Que.

December 17, 1904.—Examination of crossing of Montreal Street Railway over Pie-Neuf avenue, Montreal, Quebec.

December 27, 1904.—Inspection of highway crossings in Fairville, N.B., with reference to protection.

December 29, 1904.—Examination of proposed subway at Elizabeth street, under the tracks of the Grand Trunk at St. Henri, Quebec.

December 29, 1904.—Examination of interlocking plant at crossing of British Columbia Southern Railway by the Morrissey, Fernie and Michel Railway at Fernie, British Columbia.

January 17, 1905.—Examination of the Toronto Street Railway on Queen street, Toronto, Ontario, crossed by the Grand Trunk Railway.

Examination of the Toronto Street Railway on Queen street, Toronto, Ontario, crossed by the Canadian Pacific Railway.

January 17, 1905.—Examination of proposed subway at Lansdowne avenue, city of Toronto, under the tracks of the Canadian Pacific Railway and the Grand Trunk Railway.

January 20, 1905.—Examination of the St. Clair tunnel, Ontario, in connection with the operation of the same.

February 3, 1905.—Examination of the crossing of Main street by the Grand Trunk Railway in the town of Welland, Ontario.

February 9, 1905.—Examination for opening of traffic of a portion of the Vancouver, Victoria and Eastern Railway and Navigation Company.

February 16, 1905.—Examination of the Canadian Pacific Railway branch line along Liberty street and Fraser avenue, Toronto, Ontario.

February 16, 1905.—Inspection of the Queenston street bridge in the city of St. Catharines, Ontario,

December 21, 1905.—Examination in the town of Guelph, Ontario, in connection with the expropriation of Jubilee park by the Grand Trunk Railway for station purposes.

March 15, 1905.—Inspection of street crossings on the lines of the Grand Trunk and Canadian Pacific Railways, in the tow nof Lindsay, Ontario.

March 20, 1905.—Examination of the ground of the Grand Trunk Railway asked for by the Guelph and Goderich, Ontario.

March 30, 1905.—Examination of proposed subway under the Quebec Bridge Railway at Côte St. François, county of Quebec, Quebec.

April 1, 1905.—Examination of the application of the Canadian Pacific Railway Company with reference to crossing of several streets in the city of Toronto, Ontario.

April 1, 1905.—Examination of proposed branch line on the east side of the River Don, Toronto, Ontario.

April 1, 1905.—Examination of the Canadian Pacific Railway bridge over the Rideau river, Ottawa, Ontario, in reference to floods.

April 3, 1905.—Examination of the crossing of several streets by the Canadian Pacific Railway along the Esplanade, Toronto, Ontario.

April 4, 1905.—Examination for proposed subway, Bank street, under the tracks of the Canada Atlantic Railway, Ottawa, Ont.

April 4, 1905.—Inspection of farm crossing on the line of the Guelph and Goderich on the farm of F. H. Hall.

April 5, 1905.—Inspection of the proposed crossing of the Ayr line of the Grand Trunk Railway, by the South Western Traction Company, near St. Thomas, Ontario.

April 6, 1905.—Inspection of crossing of the Grand Trunk Railway on the farm of Geo. Knill, three miles west of Paris, Ontario.

April 6, 1905.—Examination of Clough's Crossing, Lennoxville, Quebec.

April 7, 1905.—Examination of open culvert under the track of the Quebec Southern Railway, about one mile west of St. Angèle, county of Rouville, Quebec.

April 19, 1905.—Examination of the New Brunswick Southern Railway.

April 20, 1905.—Examination of the Salisbry and Harvey Railway, New Brunswick.

April 22, 1905.—Examination of the Richelieu river bridge of the Quebec Southern Railway at Sorel, Quebec.

April 23, 1905.—Examination of proposed farm crossing of Arcene Boisvert by the Grand Trunk Railway, in the parish of Ste. Amélia, township of Bulstrode, Quebec.

May 2, 1905.—Examination of the crossing of the Grand Trunk Railway by the Canadian Pacific at Lennoxville, Quebec.

May 3, 1905.—Examination of the lands of the Grand Trunk and Guelph and Goderich Railways at Goderich, Ontario.

May 4, 1905.—Examination of the crossings of properties of Alexander and Adam Morrow, at Millbank, Ontario, by the Guelph and Goderich Railway.

May 4, 1905.—Examination of Mr. Hall's crossing in the township of Wellesley, by Guelph and Goderich Railway.

May 6, 1905.—Inspection of Prince Albert branch of the Canadian Northern Railway, mileage 278 to 285.

May 7, 1905.—Inspection of main line of the Canadian Northern Railway from Humbolt to the 10th siding; mileage, 425 to 507.

May 9, 1905.—Inspection of Rossburn extension of the Canadian Northern Railway, mileage 0 to 20·7.

May 11, 1905.—Inspection of crossing of the Canadian Pacific Railway by the Canadian Northern Railway, at Hartney, Manitoba.

May 12, 1905.—Inspection of the Greenway extension of the Canadian Northern Railway; mileage, 0 to 52.

May 21, 1905.—Inspection of station grounds at Revelstoke, British Columbia.

May 22, 1905.—Inspection of proposed logging crossing of the Canadian Pacific Railway, near Silverdale, British Columbia.

May 29, 1905.—Examination of highway crossing in the Coteau Junction yard by the Grand Trunk Railway.

June 2, 1905.—Examination of proposed crossing of the Sutton branch of the Grand Trunk by the James bay.

June 2, 1905.—Examination of Queen street crossing, Canadian Pacific Railway, Toronto, Ontario.

June 5, 1905.—Examination of the crossing of the de Lisle drain by the Canada Southern Railway in the county of Essex, Ontario.

June 5, 1905.—Examination of the Little River drain under the tracks of the Canada Southern in the township of Sandwich south, county of Essex, Ontario.

June 6, 1905.—Examination respecting highway crossings in the village of Dutton, Ontario, by the Canada Southern and Pere Marquette Railways.

June 8, 1905.—Examination of crossing of the Grand Trunk by Canadian Pacific Railway near St. Thomas, Ontario.

June 8, 1905.—Examination of some streets crossed by the Grand Trunk in the city of Woodstock, Ontario.

June 15, 1905.—Examination of proposed Staynerville branch of the Canadian Pacific Railway at Staynerville, county of Argenteuil, Quebec.

June 15, 1905.—Inspection of station grounds on the line of the Canadian Pacific Railway at Franklin, Manitoba.

June 17, 1905.—Examination of the Smith drain of the Canada Southern Railway.

June 19, 1905.—Examination in reference to flooding of subway in the town of Trenton, Ontario, under the tracks of the Grand Trunk Railway.

June 25, 1905.—Inspection of crossing of the Don road, county York, Ontario, by the James Bay Railway.

June 26, 1905.—Inspection of crossings of the Grand Trunk Railway, on the farm of Donald MacKenzie, about two miles west of Hyde Park Junction, Ontario.

June 26, 1905.—Inspection of proposed undercrossing of the Grand Trunk Railway at Tecumseh, Ontario.

July 4, 1905.—Inspection of proposed undercrossing of the Grand Trunk Railway at Port Hope, Ontario.

July 5, 1905.—Examination of trestle under the Quebec Southern Railway, near Vercheres, Quebec.

July 6, 1905.—Examination of the trestle under the west approach of the Quebec Southern Railway bridge over the Richelieu river, at Sorel, Quebec.

July 8, 1905.—Examination of Charles Bennett's property in reference to his watercourse along and under the Quebec branch of the Grand Trunk Railway, in the township of Shipton, Quebec.

July 10, 1905.—Inspection of location of Preston and Berlin Railway on Caroline and Erb streets, in the town of Waterloo, Ontario.

July 11, 1905.—Examination of the crossing of St. Clair avenue, Toronto, Ontario, by the Toronto Suburban Railway.

July 13, 1905.—Examination of crossing of streets in Parry Sound, Ontario, by James Bay Railway.

July 13, 1905.—Inspection of street crossings over the Canadian Pacific Railway, in the town of Almonte, Ontario.

July 19, 1905.—Examination of the highway crossing at Coteau station by the Grand Trunk Railway.

July 25, 1904.—Inspection of bridge interlocking where the Grand Trunk Railway crosses the Trent Valley canal at Nassau, Ontario.

July 26, 1905.—Inspection of crossing of the Queen's Wharf branch, Toronto, of the Canadian Pacific Railway by an additional track of the Grand Trunk Railway, with reference to interlocking.

July 28, 1905.—Examination of highway crossing in the township of Lynden, Ontario, by Grand Trunk Railway.

August 5, 1905.—Re-examination of proposed Staynerville branch of the Canadian Pacific Railway at Staynerville, county of Argenteuil, Quebec.

August 18, 1905.—Examination of box culvert under the Grand Trunk Railway, in the town of Lachine, Quebec.

August 19, 1905.—Inspection of MacGregor-Varcoe branch of the Canadian Pacific Railway, Manitoba.

August 19, 1905.—Inspection of Wetaskawin branch of the Calgary and Edmonton Railway, Alberta.

August 22, 1905.—Examination of the proposed crossing of the Grand Trunk Railway by the Canadian Pacific Railway at Beeton, Ontario.

August 22, 1905.—Examination of the proposed crossing of the Grand Trunk Railway by the Canadian Pacific Railway at Utopia, Ontario.

August 25, 1905.—Examination of Greenwood avenue, crossed by the Grand Trunk Railway, Toronto, Ontario.

August 26, 1905.—Examination of proposed crossing of the Grand Trunk Railway spur by the James Bay Railway at Beaverton, Ontario.

August 28, 1905.—Examination of the proposed crossing of the Grand Trunk Railway by the Canadian Pacific Railway at Tottenham, Ontario.

August 28, 1905.—Examination of proposed crossing of the Grand Trunk by the Canadian Pacific Railway at Caldwell Junction, Ontario.

August 28, 1905.—Examination of proposed crossing of Grand Trunk Railway by Canadian Pacific, Midland division.

September 4, 1905.—Inspection for traffic of Canadian Pacific Railway, main line, Calgary division.

September 4, 1905.—Inspection for opening of traffic of Wetaskiwin branch of the Canadian Pacific Railway from Wetaskiwin to Camrose.

September 14, 1905.—Inspection for opening of traffic of the Pheasant Hills branch of the Canadian Pacific Railway at Lipton, Alberta.

September 18, 1905.—Inspection for traffic of the Lacombe branch of the Canadian Pacific Railway at Lacombe, N.W.T.

October 3, 1905.—Inspection of proposed highway crossing over the Grand Trunk Railway between lots 1 and 2, block 'B,' in the township of Sarnia, Ontario.

October 8, 1905.—Inspection of Ayr ballast on line of the Canadian Pacific Railway at Ayr, Ontario.

October 9, 1905.—Inspection of highway crossing of the Guelph and Goderich Railway, near Blyth, Ontario.

October 19, 1905.—Inspection of proposed crossings of the Grand Trunk and Canadian Pacific Railways at Chatham, Ontario, and the Père Marquette Railway at Wallaceburg, Ontario, by the Chatham, Wallaceburg and Lake Erie Railway.

October 19, 1905.—Inspection of Chatham, Wallaceburg and Lake Erie Railway from Chatham, Ontario, to Wallaceburg, Ontario, for opening for traffic.

October 21, 1905.—Inspection of crossing of Grand Trunk Railway by an additional track of the Canadian Pacific Railway, near Davenport station, on the Northern and Northwest division.

October 30, 1905.—Inspection of interlocking where Canadian Pacific Railway crosses the Trent Valley canal at Peterborough, Ontario.

October 31, 1905.—Inspection of interswitching track connecting the Grand Trunk and Canadian Pacific Railways at Lindsay, Ontario.

September 19, 1905.—Inspection of location of the Klondike Mines Railway from Dowson City to the town of Grand Forks, B.C.

November 1, 1905.—Inspection of interlocking plant on the Toronto, Hamilton and Buffalo Railway at Garth street, Hamilton, Ontario.

November 15, 1905.—Inspection of proposed street crossing the Grand Trunk Railway in the town of Waterloo, Ontario.

November 23, 1905.—Inspection for the opening of traffic of the Orford Mountain Railway, from Kingsbury to Windsor, Ontario.

December 1, 1905.—Inspection of the tracks of the Oshawa Railway in the town of Oshawa, Ontario.

December 1, 1905.—Inspection of Corbett's crossing over the Grand Trunk Railway, one miles east of Whitby, Ontario.

December 9, 1905.—Inspection of subway under the Grand Trunk Railway on Grand River street, in the town of Paris, Ontario.

December 12, 1905.—Inspection of Lacombe branch of the Canadian Pacific Railway for opening of traffic.

December 13, 1905.—Inspection of interlocking where the Guelph and Goderich Railway crosses the Grand Trunk Railway, two miles west of Guelph, Ontario.

December 13, 1905.—Inspection of street crossings over the Grand Trunk Railway, in the town of Strathroy, Ontario.

January 8, 1906.—Inspection of proposed crossing of the Grand Trunk Railway by the James Bay Railway at Washago, Ontario.

January 15, 1906.—Inspection of location of line of the Niagara-Welland Power Company, in the townships of Brantford and Ancaster, counties of Brant and Wentworth, Ontario.

January 17, 1906.—Inspection of proposed drain across the line of the Grand Trunk Railway, in the township of Malahide, near Aylmer, Ontario.

January 18, 1906.—Inspection of proposed drain in the township of Blanford, Ontario, on the Buffalo and Goderich branch of the Grand Trunk Railway.

January 18, 1905.—Inspection of proposed drain for the benefit of Winterhalt property on the line of the Grand Trunk Railway, in the town of Preston, Ontario.

January 31, 1906.—Inspection of interlocking where the Hamilton Radial Railway crosses a spur of the Toronto, Hamilton and Buffalo Railway, in the city of Hamilton, Ontario.

February 1, 1906.—Examination of street crossings by Canadian Pacific Railway in the city of Vancouver, B.C.

February 1, 1906.—Inspection of proposed farm crossings on the farms of Lackner and Grasser, on the line of the Guelph and Goderich Railway, in the county of Waterloo, Ontario.

February 2, 1906.—Inspection of proposed undercrossing on the farm of J. Cockerline, at Blyth, Ontario.

February 3, 1906.—Inspection of proposed farm crossing over the track of the Canada Southern Railway, on the farm of Alexander Parkes, near Cornell, Ontario.

February 20, 1906.—Inspection of proposed drain across the lands of Captain Malloy, on the line of the Grand Trunk Railway, in the township of Brantford, county of Brant, Ontario.

February 20, 1906.—Inspection of track of the Grand Valley Railway, in the town of Galt, Ontario.

February 21, 1906.—Inspection of proposed terminal yards of the Canada Southern Railway, near Windsor, Ontario.

February 22, 1906.—Inspection of crossing of Grand Trunk Railway by the Père Marquette Railway, in the city of Chatham, Ontario.

February 23, 1906.—Inspection of proposed Whalen drain across the track of the Canada Southern Railway, near Southwick, Ontario.

March 3, 1906.—Inspection of Ostrander drain, on the line of the Canadian Pacific Railway, near Ostrander station, Ontario.

March 5, 1906.—Examination of the crossing at King street, Sherbrooke, Quebec, Grand Trunk Railway.

March 9, 1906.—Inspection of foundations of the Queenston street bridge, in the city of St. Catharines, Ontario.

March 29, 1906.—Examination of a box culvert under the Grand Trunk Railway, in the town of Lachine, Quebec.

March 31, 1906.—Examination of the property of James Kavanagh, Ottawa, Ontario, for Grand Trunk Railway purposes.

APPENDIX G.

REPORT

OF THE

INSPECTOR OF ACCIDENTS OF THE BOARD

APPENDIX G.

REPORT OF THE INSPECTOR OF ACCIDENTS OF THE BOARD.

OTTAWA, November 10, 1906.

A. D. CARTWRIGHT, Esq.,
Secretary, Board of Railway Commissioners for Canada,
Ottawa.

DEAR SIR,—I respectfully beg to hand you herewith my report showing the number of persons killed and injured in train accidents during the periods commencing from February 1, 1904, to March 31, 1905, and from April 1, 1905, to March 31, 1906, as per reports made by the railway companies to the Board of Railway Commissioners for Canada, in accordance with the Railway Act, 1903, sections 235 and 236.

The above statements have been prepared showing these accidents classified as follows:—

First.—The number of passengers killed and injured.

Second.—The number of employees killed and injured.

Third.—The number of other persons killed and injured.

Another classification has also been made, showing the accidents for each railway company separately.

During the first period, 402 persons were killed and 144 injured; the second period, 382 persons killed and 222 injured, making a total for the two periods of 784 persons killed and 366 injured.

During the first period, investigations have been held by the inspector of accidents on the following accidents:—

March 15, 1904.—Collision at the diamond crossing at Lennoxville, between the Canadian Pacific Railway and the Boston and Maine.

May 2, 1904.—Rear-end collision at South River, Grand Trunk Railway.

June 11, 1904.—Derailment at Thistle, Canadian Pacific Railway.

June 17, 1904.—Rear-end collision at Paris, Ontario, Grand Trunk Railway.

June 23, 1904.—Derailment at Riverdale, Grand Trunk Railway.

August 31, 1904.—Head-on collision at Richmond, province of Quebec, Grand Trunk Railway.

September 1, 1904.—Head-on collision at Sintulata, Assiniboia East, Canadian Pacific Railway.

September 13, 1904.—Rear-end collision at De Lotbinière *re* accident, November 26, 1903.

September 28, 1904.—Rear-end collision at Eastwood, Grand Trunk Railway.

November 30, 1904.—Derailment at the diamond crossing at Pelton, Michigan Central Railroad and the Père Marquette.

January 20, 1905.—Rear-end collision at Chalk River, Canadian Pacific Railway.

February 17, 1905.—Rear-end collision at Smithville, Toronto, Hamilton and Buffalo Railway.

February , 1905.—Derailment at Low, Canadian Pacific Railway.

February 30, 1905.—Level crossing at Sorel, South Shore Railway.

March 2, 1905.—Rear-end collision at San Claire, Canadian Pacific Railway.

March 22, 1905.—Rear-end collision at White River, Canadian Pacific Railway.

March 23, 1905.—Rear-end collision at West St. John, New Brunswick, Canadian Pacific Railway.

March 25, 1905.—Head-on collision at Louisville, Canadian Pacific Railway.

April 3, 1905.—Derailment at Iberville, province of Quebec, Quebec Southern Railway.

June 5, 1905.—Shunting at Shawinigan Falls, Great Northern Railway.

Investigation *re* traffic accommodation and facilities on railways, as follows:—

December 21, 1904.—The Père Marquette Railway: *re* Messrs. Drew & O'Keefe's complaints.

April 30, 1904.—Great Northern Railway: *re* Azarie Lessard's complaint.

February 20, 1905.—Quebec Southern Railway: General complaint *re* train accommodation and station facilities.

September 26, 1905.—Canadian Pacific Railway: Station accommodation and facilities at St. Bazile, New Brunswick.

During the second period investigations have been held on the following accidents:—

September 11, 1905.—Rear-end collision at Hammond, Canadian Pacific Railway.

October 31, 1905.—Rear-end collision at Dinorwic, Canadian Pacific Railway.

October 11, 1905.—Derailment at Garçon's, Canadian Pacific Railway.

November 3, 1905.—Level crossing at Lennoxville, Grand Trunk Railway.

November 6, 1905.—Shunting at Winnipeg yard, Canadian Pacific Railway.

November 26, 1905.—Shunting at Kenora yard, Canadian Pacific Railway.

January 14, 1906.—Shunting at Iberville, province of Quebec, Central Vermont.

January 25, 1906.—Collision on diamond at London, Grand Trunk and Street railways.

February 15, 1906.—Rear-end collision at Osko, Canadian Pacific Railway.

February 16, 1906.—Head-on collision at Merritton, Ontario, (electric railway) Niagara, St. Catharines and Toronto Railway.

February 28, 1906.—Public crossing, Stratford, Ontario, Grand Trunk Railway.

February 19, 1906.—Electric railway at Maplewood (Montreal), Montreal Park and Island Railway.

INSPECTION OF RAILWAYS.

June 5, 1905.—Central Vermont Railway system.

June 15, 1905.—Maine Central Railway (lines in Canada).

June 19, 1905.—Boston and Maine Railway (lines in Canada).

June 30, 1905.—Atlantic and Lake Superior Railway.

August 11, 1905.—South Shore Railway at Montreal South, *re* L. J. E. Brais' complaint.

August 17, 1905.—Montreal Terminal Railway (electric railway).

September 26, 1905.—Canadian Pacific Railway *re* St. Bazile, New Brunswick, station accommodation and facilities.

September 30, 1905.—De Lotbinière and Lake Megantic Railway.

September 30, 1905.—Quebec Central Railway *re* complaint of Mrs. Joseph Morin at Black Village.

October 15, 1905.—Temiscouata Railway.

October 30, 1905.—Inspection of the Montreal Park and Island Railway (electric).

February 15, 1906.—Report on the Grand Trunk Railway, by-law No. 24.

March 24, 1906.—Report on Montreal Park and Island Railway, by-law clause 26.

The whole respectfully submitted.

ED. C. LALONDE.
Inspector of Accidents.

SESSIONAL PAPER No. 20c

BOARD OF RAILWAY COMMISSIONERS FOR CANADA.

STATEMENT showing the number of persons killed and injured on various railways in Canada, from February 1, 1904, to March 31, 1905.

Name of Railway.	Passengers.		Employees.		Other Persons.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Grand Trunk Railway	22	24	63	12	82	4	167	40
Canadian Pacific Railway	47	11	75	45	63	3	185	59
Dominion Atlantic	.....	.....	1	.....	2	1	3	1
Canada Atlantic	1	.....	.....	.....	2	2	3	2
Canadian Northern	1	.....	21	23	5	1	27	24
New Brunswick Coal and Railway	1	.....	.....	.....	.....	.....	1	.....
Quebec Central	1	1	1	.....	1	.....	3	1
Nelson and Fort Sheppard	.....	.....	1	1	.....	.....	1	1
Hull Electric Railway	.....	1	.....	.....	2	.....	2	1
New Brunswick Southern	.....	.....	1	.....	.....	.....	1	.....
Michigan Central	.....	1	1	6	3	1	4	8
Cumberland Railway and Coal Co	.....	.....	.....	.....	1	.....	1	.....
Toronto, Hamilton and Buffalo	.....	.....	2	5	.....	.....	2	5
Père Marquette	.....	.....	1	.....	.....	2	1	2
Quebec Southern	.....	.....	1	.....	.....	.....	1	.....
Totals	73	38	168	92	161	14	402	144

BOARD OF RAILWAY COMMISSIONERS FOR CANADA.

STATEMENT showing the character of accidents on various railways in Canada, from February 1 to March 31, 1905.

Character of Accident.	Passengers.		Employees.		Other Persons.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Stealing ride	.....	.....	.....	.....	8	3	8	3
While shunting	.....	.....	38	15	.....	.....	38	15
Riding on cars	.....	.....	5	8	.....	.....	5	8
Level crossings	.....	.....	.....	.....	42	5	42	5
Falling off freight cars	.....	.....	13	8	.....	.....	13	8
Trespassing	.....	.....	.....	.....	109	6	109	6
Jumping on break beam to ride	.....	.....	2	4	.....	.....	2	4
Derailment	3	4	12	17	.....	.....	15	21
Adjusting couplers, coupling and uncoupling	.....	.....	17	8	.....	.....	17	8
Passengers falling off passenger trains	6	1	.....	.....	.....	.....	6	1
Working on track	.....	.....	5	2	.....	.....	5	2
Working on bridges	.....	.....	3	1	.....	.....	3	1
Collision, head-on	15	25	9	3	.....	.....	24	28
Collision, rear-end	17	.....	15	16	.....	.....	32	16
Collision, street car and steam train	2	.....	1	.....	.....	.....	3	.....
Attempting to get on train while in motion	15	5	5	5	.....	.....	20	10
Falling off hand car	.....	.....	18	3	.....	.....	18	3
Side ladders	.....	.....	2	.....	.....	.....	2	.....
Falling between cars while walking on top of train in motion	.....	.....	2	.....	.....	.....	2	.....
Locomotive explosion	.....	.....	2	1	.....	.....	2	1
Jumping off train while in motion	6	2	6	1	.....	.....	12	3
Asphyxiated in tunnels	.....	.....	5	.....	.....	.....	5	.....
Wash-out	1	1	.....	.....	.....	.....	1	1
Riding on pilot of engine	.....	.....	2	.....	.....	.....	2	.....
Suicide, throwing self in front of engine and trains	.....	.....	.....	.....	2	.....	2	.....
Gasoline motor	.....	.....	1	.....	.....	.....	1	.....
Electrocuted	.....	.....	1	.....	.....	.....	1	.....
Working under cars or engines	.....	.....	3	.....	.....	.....	3	.....
Overhead bridge	.....	.....	1	.....	.....	.....	1	.....
Totals	73	38	168	92	161	14	402	144

BOARD OF RAILWAY COMMISSIONERS FOR CANADA.

STATEMENT showing the number of persons killed and injured on various railways in Canada, from April 1, 1905, to March 31, 1906.

Name of Railways.	Passengers.		Employees.		Other Persons.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Grand Trunk Railway	14	1	39	2	80	4	134	7
Canadian Pacific Railway	59	17	63	31	70	6	192	54
Canadian Northern Railway	2	1	4	72	6	1	12	74
Great Northern Railway	.....	.....	3	1	.....	1	3	2
Temiscouata Railway	.....	.....	.....	1	.....	.....	.....	1
Can. G. and G	.....	.....	2	2	.....	.....	2	2
Central Vermont Railway	.....	.....	3	.....	.....	.....	3	.....
Algoma Central	.....	.....	.....	.....	3	.....	3	.....
Tilsonburg, Lake Erie and Pacific	.....	.....	.....	.....	1	.....	1	.....
Quebec Southern	.....	.....	1	1	.....	1	1	2
Vancouver, Westminster and Yukon Railway	.....	.....	1	.....	.....	.....	1	.....
Canada Atlantic	.....	.....	.....	.....	3	.....	3	.....
Boston and Maine Railway	.....	.....	1	.....	1	.....	2	.....
Dominion Atlantic	1	.....	1	.....	2	2	4	2
Michigan Central Railway	1	23	7	50	11	2	19	75
Cumberland Railway and Coal Co	.....	.....	.....	1	1	.....	1	1
Pere Marquette Railway	.....	.....	1	2	.....	.....	1	2
	77	42	126	163	179	17	382	222

BOARD OF RAILWAY COMMISSIONERS FOR CANADA.

STATEMENT showing the character of accidents on various railways, from April 1, 1905, to March 31, 1906.

Character of Accident.	Passengers.		Employees.		Other Persons.		Total.	
	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.	Killed.	Injured.
Stealing ride	.....	.....	.....	.....	17	1	17	1
While shunting	.....	.....	14	18	.....	.....	14	18
Riding on cars	.....	.....	2	.....	.....	.....	2	.....
Level crossings	.....	.....	.....	.....	42	9	42	9
Falling off freight cars	.....	.....	6	5	.....	.....	6	5
Trespassing	.....	.....	.....	.....	113	6	113	6
Jumping on brakebeam to ride	.....	.....	.....	4	.....	.....	.....	4
Derailment	43	17	3	19	.....	.....	46	36
Adjusting couplers, coupling and uncoupling	.....	.....	19	9	.....	.....	19	9
Passengers falling off passenger train	6	2	.....	.....	.....	.....	6	2
Working on track	.....	.....	8	2	.....	.....	8	2
Working on bridges	.....	.....	4	.....	.....	.....	4	.....
Collision, head-on	3	4	6	.....	.....	.....	9	4
Collision, rear-end	3	16	4	4	.....	.....	7	20
Collision, steam train and street car	1	.....	.....	.....	.....	.....	1	.....
Attempt to get on train in motion	17	3	4	4	.....	.....	21	7
Falling off hand car	.....	.....	17	.....	.....	.....	17	.....
Side ladders	.....	.....	.....	2	.....	.....	.....	2
Falling between cars while walking on top of trains	.....	.....	8	9	.....	.....	8	9
Locomotive explosion	.....	.....	1	.....	.....	.....	1	.....
Jumping off train while in motion	4	.....	5	4	.....	.....	9	4
Riding on pilot of engine	.....	.....	1	4	.....	.....	1	4
Suicide	.....	.....	.....	.....	6	.....	6	.....
Gasoline motor	.....	.....	2	1	.....	.....	2	1
Working under car	.....	.....	2	.....	.....	.....	2	.....
Working under engine	.....	.....	2	.....	.....	.....	2	.....
Level crossing	.....	.....	.....	.....	.....	.....	.....	.....
Interlocking plant	.....	.....	1	.....	.....	.....	1	.....
Struck by switch stand	.....	.....	.....	1	.....	.....	.....	1
Caught in guard rail	.....	.....	.....	1	.....	.....	.....	1
Unclassified	.....	.....	17	76	1	1	18	77
	77	42	126	163	179	17	382	222

APPENDIX H.

ORDER OF THE BOARD DATED JANUARY 25, 1906

RE

CAR SERVICE RULES

APPENDIX H.

ORDER OF THE BOARD DATED JANUARY 25, 1906, *RE* CAR SERVICE RULES.

Whereas numerous complaints have been made to the Board of Railway Commissioners for Canada with respect to the charges made by railway companies for delay in the loading and unloading of cars, and the rules regulating the same;

And whereas it appears to the board that all such charges and rules should be disallowed, and that, in cases in which railway cars are, or are to be, loaded or unloaded by shippers or consignees, railway companies should be authorized, subject to the rules hereinafter contained, and by way of compensation for unduly prolonged detention and use of cars and use of tracks, to increase, as hereinafter specified, their tolls upon traffic carried or to be carried in carloads, or at carload rates;

And whereas it appears to the board to be important, in the public interest, to secure the fullest possible use of railway cars, tracks, and equipment, and for that object to discourage the delay aforesaid;

Now, therefore, in pursuance of sections 23, 25, 257 and 275 of the Railway Act, 1903, and of all powers possessed by the board under the said Act—

It is ordered that,

1. Except as mentioned in the proviso to paragraph numbered 4 of this order, all tolls or charges heretofore charged or imposed by any railway company for delay in, or additional time used in, the loading or unloading of cars, whether under the name of demurrage, car rental, or car service, or otherwise, and all rules regulating the same be and the same are hereby abolished and disallowed; and all railway companies subject to the jurisdiction of the board shall henceforth cease to impose and use the same.

2. Except as mentioned in the proviso to paragraph numbered 4 of this order, every portion of any freight tariff, or bill of lading, of any railway company providing for a charge for delay in the loading or unloading of cars, or for demurrage, car rental, or car service, be and the same are hereby disallowed, and that the following tolls and rules be and the same are hereby substituted for such charges, and for the rules regulating such charges.

3. The railway companies be and they are hereby authorized to cancel the aforesaid portions of their existing freight tariffs, and to substitute the tolls and rules hereinafter specified, by the publication and filing of general notices in lieu of individual supplements to the various tariffs.

4. This order, and the rules hereinafter set forth, shall come into force and take effect on and from the first day of March, A.D. 1906; provided that nothing in this order, or in the rules hereinafter set forth, shall be deemed to apply to or affect the loading of cars delivered, or placed, for loading prior to the coming into force of this order, or to the freight delivered to a railway company for carriage before the coming into force of this order.

5. All freight traffic, in carloads or less, which is, or is to be, loaded or unloaded by the shippers or consignees thereof, shall be subject to the following rules, to be known as 'The Canadian Car Service Rules':—

Rule 1.—When cars are held under load, or awaiting loads, beyond the free time allowed by rule 2, for any reason for which the consignee or shipper is responsible, a toll of one dollar per car, per day of twenty-four hours, or any part thereof, shall be charged to, and paid by, the shipper, consignee, or other party responsible there-

for, in addition to all other tolls paid, or payable, in respect of the goods carried, or to be carried, in or on such car.

Rule 2.—Twenty-four hours shall be allowed the consignee, after notice of arrival, in which to pay the tolls or charges (if any), and give orders for special placing or delivery; (subject to rules 11 and 15).

Forty-eight hours' free time shall be allowed for loading or unloading (except as hereinafter provided). On cars placed for loading, or unloading, before or at 11 o'clock a.m., the free time shall begin at 1 p.m. following; if placed after 11 o'clock a.m., the free time shall begin at 7 o'clock a.m. following.

Exceptions.—(*a*) Twenty-four hours additional free time shall be allowed for unloading coal, coke, and lime, in bulk, and for loading or unloading the following descriptions of lumber only, namely: boards, deals, and scantlings.

(*b*) Five days' free time shall be allowed at Montreal, and at tide-water ports, for unloading lumber and hay for export.

(*c*) In the portion of Canada to which the Manitoba Grain Act, 1900, and its amendments, apply, only twenty-four hours' free time shall be allowed for loading grain.

(*d*) Twenty-four hours' additional free time shall be allowed for clearance of customs, where the destination is a port of entry, making the allowance for clearance of customs, and for giving, placing or delivery orders, forty-eight hours in all.

Where the destination is not a port of entry, forty-eight hours shall be allowed for clearence of Customs at the outside port of entry.

Rule 3.—No car service toll shall be charged for Sundays or legal holidays.

Rule 4.—Car service tolls shal not be collected from the consignee for any delays for which the customs officials may be responsible.

Rule 5.—Cars shall be so placed so as to be easily accessible at all times during the period allowed for unloading and unloading. At stations where the placing is at the time reasonably practicable, cars shall be so placed so as to be easily accessible on both sides. Time lost to the shipper or consignee through interuption, either by movement of trains, or shunting of cars, or any other cause for which the railway is, or may be held to be, responsible, shall be added to the free time allowance.

Rule 6.—If wet or inclement weather, according to local conditions, renders loading or unloading impractible during busines hours, or expose the goods to damage, the time allowance shall be extended so as to give the full free time of suitable weather. But if the parties neglect to avail themselves of the first forty-eight hours, or seventy-two hours, as the case may be, of suitable weather, they shall not be allowed additional free time by reason of such neglect.

Rule 7.—When, owing to conditions for which the railway company, or connecting railway companies, is or are responsible, or to any neglect or default of its or their agents or employees, or to storms or floods, or to accidents on a railway, or accident to the equipment of the railway company or companies, cars are tendered to the consignee in numbers beyond his ascertained reasonable ability to unload within the authorized free time, such additional time shall be allowed as may be necessary, with the exercise of due and reasonable diligence on the consignee, to unload the cars so in excess.

Rule 8.—The consignee shall be promptly notified of the arrival of his freight and shall be held to have been notified when notice of arrival has been delivered at his address or place of business; provided that if such notice be given later than 6 o'clock, p.m., it shall be considered not to have been received until 7 o'clock the following morning. If notice be mailed, the consignee shall be held to have been notified at 7 o'clock a.m. of the day following.

Rule 9.—If the consignee fail to give placing or delivery orders within the twenty-four hours allowed by Rule 2, the car shall be considered to be intended for public team track delivery and shall be placed accordingly; and, if not unloaded within the free time, such car shall be subject to the car service toll.

Rule 10.—The railway agent shall notify the consignee or his carter, on application, where his car has been placed for unloading. Any time within the free time allowance lost to the consignee in so doing, for which the railway company is responsible, shall be added to the free time allowance.

If a car has been placed before 7 o'clock a.m., and at that hour the agent or his representative is unable or fails to inform the consignee or his representative, on application, as to the placing of the car and where it has been placed, then the free time shall not commence until 12 o'clock noon following, unless the consignee commences to unload before noon, in which case the time so lost to the consignee shall be added to the free time allowance as aforesaid.

Rule 11.—Freight for which the railway company holds previous or standing orders from consignee for placing on designated tracks or private sidings, shall not be entitled to the extra twenty-four hours allowed by Rule 2 for paying freight charges and giving or placing delivery orders, but when in bond shall be entitled to the twenty-four hours allowed by Rule 2 (*d*) for clearance of customs.

Rule 12.—When both cars and tracks are owned by the same private party, no car service tolls shall be charged.

Rule 13.—The delivery of cars to private tracks shall be considered to have been made when such cars have been properly placed on the tracks designated, or when they would have been so placed but for some condition for which the shipper or consignee is responsible. If cars cannot be so placed, the railway company holding them shall notify the consignee, in order that he may have the opportunity of designating some other siding on which he is willing to load or unload, if he so desires.

Rule 14.—If, after placing, cars are ordered to another siding on the same road at the same station, to complete loading or unloading by the same shipper or consignee, the free time shall be computed from the orignal placing, less the time occupied in replacing the car.

Rule 15.—If, after the arrival at destination, a car is reconsigned under switching arrangements, the orignal consignee alone shall have twenty-four hours in which to give orders for special placing or delivery; and shall pay one dollar per day, or any part thereof, for all time in excess of the twenty-four hours, so that the final free time of forty-eight hours, or seventy-two hours, as the case may be (authorized by Rule 2), shall still remain to the party who accepts delivery.

Rule 16.—If an authorized employee upon a railway which performs switching services gives notice that such railway is unable to receive cars for private sidings, owing to conditions for which the shippers or consignees are responsible, then any other railway company having cars for such consignees shall so advise them, and the car service toll shall be charged until the cars on such private sidings have been unloaded or loaded, as the case may be, or until such sidings have been otherwise cleared.

Rule 17.—Cars held in transit for inspection, grading, cleaning, bagging, completion or change of load, or change of destination, under a through rate from the original shipping point to the final destination, with or without a stop-over charge, and detained over the time allowed for such purpose in the published tariffs, shall be subject to the car service toll. If such shipments are transferred to other cars, the car service tolls shall follow on the cars to which transfer is made.

Rule 18.—Manufacturers, lumbermen, miners, contractors and others, who have their own tracks and motive power, and handle cars for themselves or other parties, shall be charged car service tolls on all cars delivered to them from time placed upon the interchange tracks until returned thereto, after allowance has been made for the time necessary for them to do the switching (not to exceed twenty-four hours), and for the free time authorized by Rule 2.

Rule 19.—Cars shall not be held back for the purpose of evading these rules. Loaded cars held back for cause must be reported.

Rule 20.—When cars are delayed or refused by consignees because of alleged incorrectness in the railway weights or charges, car service tolls shall not be charged if the railway weights or charges are proved to be incorrect.

Rule 21.—If payment of car service tolls properly due be refused, delivery of only the car or cars on which such car service tolls are due shall be withheld, by means of sealing or locking, or by placing where such cars shall not be accessible.

If the owners or users of private sidings, or the owners of railways referred to in Rule 18, refuse to pay any car service tolls which may already be due, delivery of cars to such sidings or railways shall be suspended, and deliveries shall be made on the public team tracks until such unsettled car service tolls have been paid.

Rule 22.—In this order, and the rules therein contained :—

(*a*) The singular includes the plural, and the plural the singular, and the masculine the feminine, as the case may be ;

(*b*) Any reference to a rule by number is to be considered as a reference to that one of the foregoing rules which is so numbered ;

(*c*) The expression 'car service toll' means the additional or increased toll authorized by Rule 1.

A. C. KILLAM,
Chief Commissioner,
Board of Railway Commissioners for Canada.

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